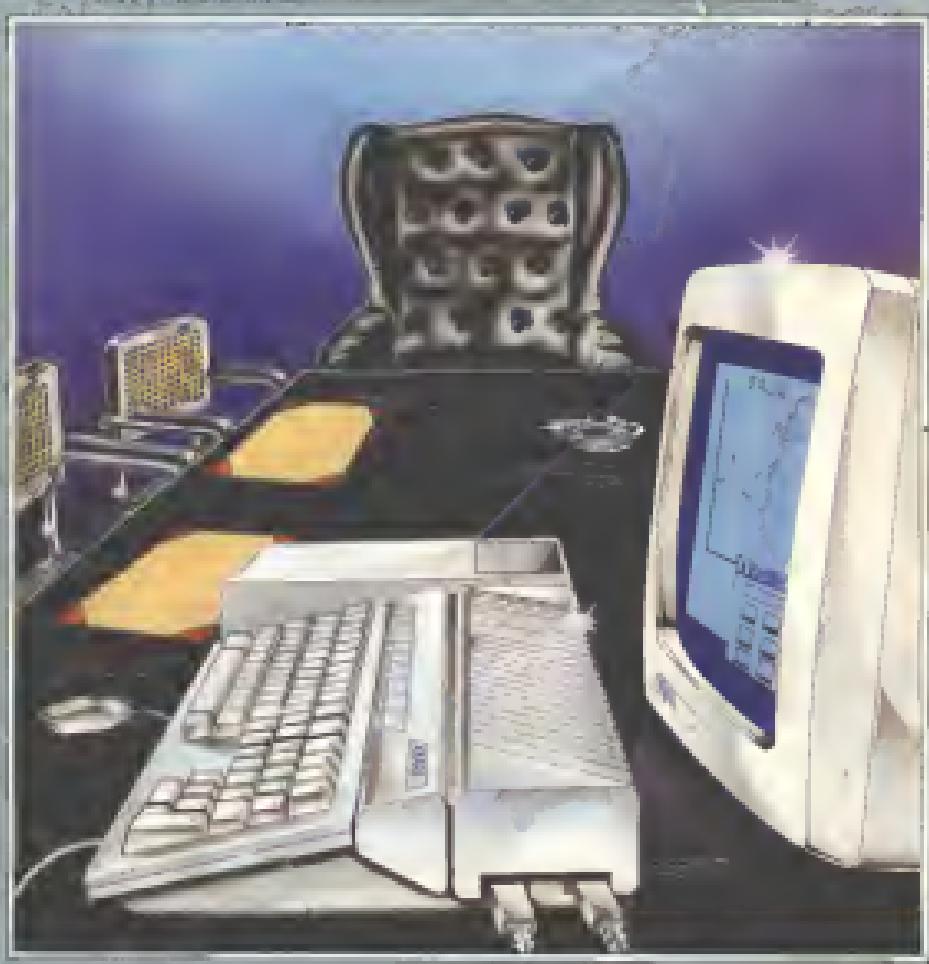


Atari ST User



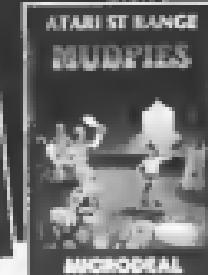
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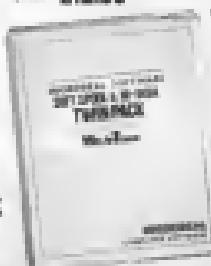
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WELCOME to the first issue of *Atari ST User*, a magazine dedicated to the most talked-about computer of the year.

When Atari boss Jack Tramiel launched the ST in Hanover just 11 months ago, his rivals trembled. At one stroke he had transformed the image of Atari from that of a selling games-oriented company to one that had to be taken very seriously indeed.

So much so that his ST

litter machines are currently poised to dominate the business market and at the same time provide do-it-yourself programmers with the most challenging and versatile computer they have ever had their hands on.

Today some 1,800 companies around the world are producing products for the ST — that's the sort of excitement it has generated.

It is to better reflect the

growing importance of the entire ST range that *Atari ST User* has been launched.

In the months to come this magazine will play a leading — and vital — role in shaping the tremendous and far-reaching developments now being planned. If it deserves the ST you can be sure you'll be able to read all about it in *Atari ST User*.

So jump aboard. It's going to be an exciting, stimulating ride.

The megabyte ST is coming!

MIKE COWLEY reporting

ATARI has announced the Big One in the United States — their first personal computer with one megabyte of memory. To be known as the 1040ST, the machine will cost \$1999.95 with a high resolution monochrome monitor or \$1199.95 with colour.

Although it will soon be shipped to the UK — just how soon nobody will say — the British price tag is still to be worked out. "Don't just do a direct conversion to work out how much it may cost here," warned an Atari spokesman.

The 1040ST is a business system featuring professional integrated design with CPU, keyboard and disc drive all built-in. It is to be offered complete with ST Basic, 1st Word (the word processing program currently bundled with the 520ST), PC-Dos/Floppy and VT32, a terminal emulator for telecommunications.

Because of current titles developed for the 520-ST range the one megabyte there will be no shortage of software to compete with its archrival States-side at least the 1040ST is to be offered exclusively for distribution by computer dealers.

In a related announcement Atari in the US has revealed it is to provide a 2D megabyte, 80-track hard disk peripheral. This 80x2048 claims to be the add-on to deliver the increased power requirements for most professional applications.

The 1040 is being viewed by the boys from Atari as the machine to break the mould — which for so long has linked the company to the games market. "Now they'll realize that we are serious about the business market," says Alan vice

president Al Montross.

Features of the new machine include its built-in double-sided double density 3½in disc drive and power supply. The operating system — the somewhat unfortunately named TOS — is in ROM, leaving the full RAM available for user applications. It offers an elegant professional 10-key keyboard with a separate cursor, 10 function keys and 18 key numeric keypad.

The 1040ST also features a built-in hard disc (DMA) port, a floppy disc interface for external 3½in drive, a built-in RS232 serial port for use with standard modems and an industry standard parallel port for connection to popular brand printers.

The 1040ST offers the choice of a high resolution monochrome monitor (640 by 400 pixels) or a medium resolution colour monitor (640 by 200 pixels) with a palette of 512 colours available.

When can Atari users in the UK hope to get their first glimpse of the one-megabyte monstrosity? Everyone is staying it very close to their chests for the time being. But here are some possible clues. Witness:

- What major computer event is to be held at the Novotel London from March 7 to 9?
- Where will Jack Tramiel be on those dates?
- Who has promised to spring a few surprises during the show?

Get it? Remember you read it first in the *Atari ST User*...

Meanwhile, the name has also been confirmed

over in the States that the 6200ST is to be unbundled. And that means that the Yanks at least will be able to buy a basic 6200ST with built-in RF modulator for under \$400.

This one is apparently to be called the 620 STM (M for modulator). But it will also have a slightly more expensive older brother - the 6200ST FM - with a built-in floppy disc drive.

Now the FM version is reported to be the replacement for the long awaited 2600ST. But at least one reliable source has actually seen a 2600ST case in the Atari UK headquarters in Slough.

Within the cut price 6200ST M (not the FM - are you paying attention at the back?) arrives in the UK - and there's as yet no indication as to when this might happen - it is likely to be unbundled by UK manufacturers like a bad case of haemorrhoids. For at that price there will be nothing on the market to compete with it for power and performance.

However just a few recent purchasers of the bundled version might feel a little envious that they

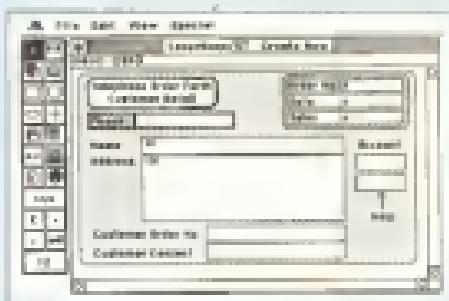
weren't even given the chance to choose. But that's the computer market for you.

Software houses worldwide are still performing like whirling devils to grab a slice of booming ST market. Atari president Sam Trammell has just announced there will be a treasure of 100 new packages for the 6200ST coming on market during the first quarter of 1986 in all that should mean about 250 significant titles available for the machine - and subsequently the new 1040ST.

'Programming for the ST is the fastest growing segment of the computer market', insists Sam Trammell. 'Over 1,000 companies worldwide are doing serious work on the machine.'

Now that this is too surprising when you recall that Jack Trammell insisted that they bought the development systems in the first place. They don't come any sharper than Atari's chairman. You tell the people at Commodore all about them. They haven't been having it easy so good luck to both the devotees of them.

A typical screen layout from Laser Software's new database for the ST.



Artistic mouse

PIRST is a new range of programs promised by Adolsoft Degas - Design and Entertainment Graphics Art System - has been designed for the Amstrad ST.

It is said to provide a comprehensive range of artistic elements under the control of the computer's mouse, including 16 tools for freehand drawing or painting in a variety of widths; special functions permitting creation of geometrically perfect shapes and an air brush that colours an area like a spray can.

A merge function makes it possible to create a mathematical or reflect an image drawn in one screen location into many other locations. Patterns drawn with the pen or brush can be filled with up to 32 pre-designed patterns, plus others which can be loaded from the program disc.

Degas runs under either disc or ROM-based Amstrad TOS operating system and can integrate pictures and text using existing type fonts

already on the program disc, or user-designed fonts. It costs £39.95.

Flexible database

DB4000/100 to work within the Gemini environment of the Amstrad ST, LaserBase/ST is a new database from Laser Software International. Users can design their database in any way they wish with total control to field or record length. Once all the information has been entered it is still possible to reorganise the original format.

Information on the database can be presented in different ways and there are three reporting options - column, list and mailing labels. Mathematical functions included provide facilities for totals, averages, transaction or item counts and maximum and minimum values.

Breaks can be used to give totals by section as well as grand totals. Searches or sorts can be made by typing in parameters in natural English and on-line help systems are provided. Price £59.





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COLOURSPACE



THE THIRD GENERATION - Jeff Minter's COLOURSPACE LIGHT SYNTHESISERS - MIND / MACHINE SYNERGY -

COLOURSPACE allows the user to create dynamic, interactive light displays using the Amiga's 320x200/312x216 pixel graphics facility. Sync with music... visualise your dreams... your psyche...

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SUBSCRIPTIONS TO THE COLOURSPACE NEWSLETTER



A NUMBER of word processors have been released for the BBCST and a couple of databases, but so far there have been no spreadsheet packages. Kuma Computers is the first company to fill this gap, with its new K-Spread software.

A number of other packages are planned, including word processor, database, colour and graphics packages which will integrate with K-Spread, eventually making it the heart of a versatile suite of programs.

Let's concentrate now on K-Spread. The program is provided on an integrated disc, and the first thing you should do is make a back-up of it. Although copy protection is necessary for games products, I feel that Kuma has got the right idea as far as business software goes.

No one wants to spend £50 on something they will need to rely on, only to find that they suddenly can't use their purchase because they split offices over the only disk. The other disadvantage of protection is that you can't easily transfer a copy-protected product on to hard disk, something which many users will soon want to do.

Once you have made your back-up, you simply boot up your system and double-click on the K-READ folder. You will then see the directory of all the Kuma programs - the main program, some update notes, and various printer-driver files to allow you to customise K-Spread to your own requirements. The default printer type is Epson that is, the normal system printer. Double-click on the program file and K-Spread will load.

The main display which will run in monochrome or medium res but neither consists of the spreadsheet itself with a number of icons down the left-hand side. You can use these to do many repetitive functions.

Dragging the disc onto the spreadsheet mouse load both disc and, interestingly, to save your sheet. I tried to double-click the disc drive symbol and it told me 'The only way to open this device is with a screwdriver'. The printer has its own icon and there is even a clipboard for temporary storage. The sheet itself is a window up to a possible 256 by 8192 cells or boxes which is large enough for most people (even with DOS loaded from disc rather than in ROM you will have 100s for your sheets, or 130s if you remove the desktop accessories, which should allow reasonably large sheets).

Movement about the sheet is simplicity itself, with all of the normal Gem functions at your disposal. This means that you may move up, down, left or right by clicking on the arrows and scrollbars beside the sheet. You may also move the window and change its size in any way you wish. If you want to move quickly to a given cell, the options pull-down menu has a GOTO command which defaults to the last position.

Also included in the options menu is a Text Search operation which will find a given piece of text within your sheet, a View option which will

K-Spread, easy on the pocket and your mind

change the size of the characters on the sheet (useful if you're working with a colour monitor) and a splitting called Split. This allows you to open up to five Gem windows simultaneously each of which you may move, size and scroll independently. The options menu also controls Sheet settings such as number of decimal places commas, any leading sign such as £, \$, and the manual/automatic recalculation settings.

Another of the pop-down menus provides you with File operations. These include Load and Save As, which saves a file under a new name, and Give and Take. These last two allow you to move portions of all of the sheet in a form understandable by the other packages in the suite. Thus you could, for example, transfer data to the word processor or graphics program.

The main Save routine seemed to contain two bugs. Firstly pressing Return after entering a filename sometimes cancelled the save, rather than executing it, even though the default mouse button was the OK function. For a beginner, and especially for someone with a high speed hard disk, this could prove disastrous if they thought that the save had been completed. The second bug came after successful completion of a save when the system insisted on telling me 'You cannot drag a cell to the desktop... which was very interesting, but not terribly relevant.'

All that is fine, but at some point you are going to want to actually enter some data on to your sheet. At this point, I feel K-Spread lets itself down badly. In order to get the Data Entry window to appear you must double-click on the relevant cell. There is NO automatic keyboard entry mode as seen on such programs as VisiCalc, in which as soon as you start to type the computer decides whether you are typing a number or some text, and acts accordingly.

Once you have double-clicked on the cell, you must select with the TAB key whether you want numeric, formulae, or text mode. Also pressing Return when you've finished is not enough to enter the info and return you to the sheet again. For that you must click on the mouse once more.

Put together this makes that you must move and select with the mouse, then type on the keyboard, then use the mouse again to finish. If you are entering a lot of repeated data, this could be extremely tedious, and the various commands in a package of this nature that there is no

ANDRÉ WILLEY
reviews a
Kuma
Computer
spread-
sheet
which will
form the
heart of a
versatile
suite of
programs

keyboard-only equivalent to the mouse operations.

The only saving grace in this area is that once in the Data Entry window, you may complete your entry and move with a Shift+Arrow combination which will move the data and move in the direction of the arrow. This removes some of the tedium, but you still need to use the mouse in order to close the window completely.

I found that a great many other normal features found even in 8-bit packages such as VisiCalc were missing. There were very few defined functions for example. You are provided with MAX, MIN, MEAN (average) and SUM but no lookup features, scientific operations or financial calculations such as interest rates. You also have no way of being able to use which version in place even if you want the date underneath or repeating labels which are useful for underlining and so on.

That said, if you type a label longer than the current cell width it will overflow for as many cells as it can until it finds one which already has data in it. If there is not enough space to the right, a small arrow will indicate that there is more text than can be displayed. Strangely there is no mention at all of this feature in the somewhat flimsy 17 page booklet that accompanies the program. Nor does it inform you that text fields will be highlighted, in green on a colour monitor, which comes as quite a surprise.

However such things as moving and copying data are as much easier than on other systems. You simply select a cell, new column or block with the mouse, and drag it to its new location. You may even drag it on to the clipboard for later use, which is very useful since you can't overlap your source and destination areas, which can prevent rather annoying at times.

Formulas may be amended to allow for the new relative positions of cells but unfortunately you can either change all of them or none at all - there is no option for leaving some absolute references untouched. Also the program requires you to select relative or absolute mode's regardless of whether or not there are any formulas involved in the cells.

The replicate function of many spreadsheets is provided in a limited form by the ability to copy a single cell on to a row or column. Most packages of this nature would allow you to scan over the sheet to select your start and end points, but K-Spread requires you to remember the cell reference numbers in order to do this, which is no mean feat (remember 2B10 & 8162H). You must again remember not to copy over the original cell, which is often a little difficult as the default settings will try to do just this.

One very nice touch here is a bar chart which indicates how long a given task will take to complete - much better than just staring at a dead screen. Similarly copying, pasting, inserting or deleting rows or columns are all extremely easy - all you need do is double click on the row/column header and up pops a menu. Click on

the other side of the column header and you can change the column width of either a single column or a group of columns.

You may consider the very large size of the sheet is displayed. By choosing a cell, row, column or block, and then dragging on it you can select integer or decimal mode, left/right/border justification, leading sign and protection (whether the system will allow you to change values within that area). The problem with this is that you may only set local values for cells with data in. If the area is currently blank you cannot change its attributes. This can be very annoying if you want to set up a column for entering money and another for percentages for example. The only way to do it would be to enter the figures first and then set the formats.

If you are trying to create a sheet for someone else to see, such as in a business, this could be extremely annoying! When you come to print out your sheet you may either use the printer menu or drag the sheet on a stick or the clipboard onto the printer icon. You may also choose either to print the finished sheet or just the formulae it uses or portions of either.

Options are included to allow page breaks, row/column header inclusion, sending of form feed and other control characters, and also which characters, if any, are used between width row and column. Screens are included for a number of printers, or you can set up your own to allow for different sizes of paper, print styles, and translation of certain special characters into others more suited to your printer.

The overall impression one gets of K-Spread is that it has been designed to be very easy to use for the beginner, and that it certainly succeeds, as it is quite the easiest spreadsheet I have ever had the pleasure to use. However in doing so I feel the author has had to sacrifice too much, with a whole set of useful operations missing. Also, the ease of use of a mouse can work against you if you don't provide a good keyboard alternative, as demonstrated by the inaccuracy of actually entering data onto the sheet.

In its favour though are two major facts. It is available, and as of now if you want a spreadsheet this is the only one available. Also the price is only £48.95. For such a product this is very cheap, and compares very well with the published price of more advanced products such as Vip Professional. Although Vip will probably win hands down on features, it will also cost almost £200.

So if all you want is a relatively straightforward easy to use spreadsheet which has all the bells and whistles of Gem and doesn't cost the earth, look no further than K-Spread. If, however, you feel that you will need more complex scientific calculations, macro graphics and everything else a Lotus 1-2-3 clone can offer perhaps you would be better off waiting for the final release of Vip Professional. That's always assuming you're not in any great hurry, of course!



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One stuffed Yak and a 520 ST is a mixture to blow your mind

WITH his shoulder length hair, faded blue jeans, draped leather and dangling ear-ring, Jeff Minter's appearance is sufficient to give a retired colonel palpitations. The fact that he likes to sleep "creeped out" on a stuffed Yak also does little to suggest he's not a throwback to the Flower Power days of the 60s.

Not that the 23-year-old programmer means to revile in being described as the last of the hippies in his home town of Teddington. Such is his fascination with that era that he is still carrying the psychedelic torch. Only Jeff doesn't burn on with drugs but babies instead on the ST.

As the driving force behind Llamasoft, he has created Colourspace as the "ultimate mind blowing experience" on the machine. What it really is a brilliant software toy, a kaleidoscope of constantly changing shapes and colours which demonstrate the graphic wonders of the ST to the full.

In its original 8-bit version, it captured the imagination of no less a person than Leonard Nimoy, son of the *Star Trek* chairman and himself an executive of the corporation. Colourspace for the 520ST took Jeff Minter some five months to write "getting up at the crack of noon most days and working until the early hours of the morning".

What is the difference between the two versions? "It's like stepping out of a mini into a Ferrari," says Jeff. "The thing is that the ST is just about like even talka talka."

"With the 8 bit you have just 64 pixels across and 64 down. But with the ST you have 2048 across and 2048 down to play with. That's why I've been able to make Colourspace the first video recorder. And that's axys!" (roughly translated that means nothing less than parrotson).

Jeff Minter is so sold on the 520ST that he is convinced that it will not only run away with the business market but also capture the top end of the enthusiast sector as well. "It can't be



Jeff Minter: better

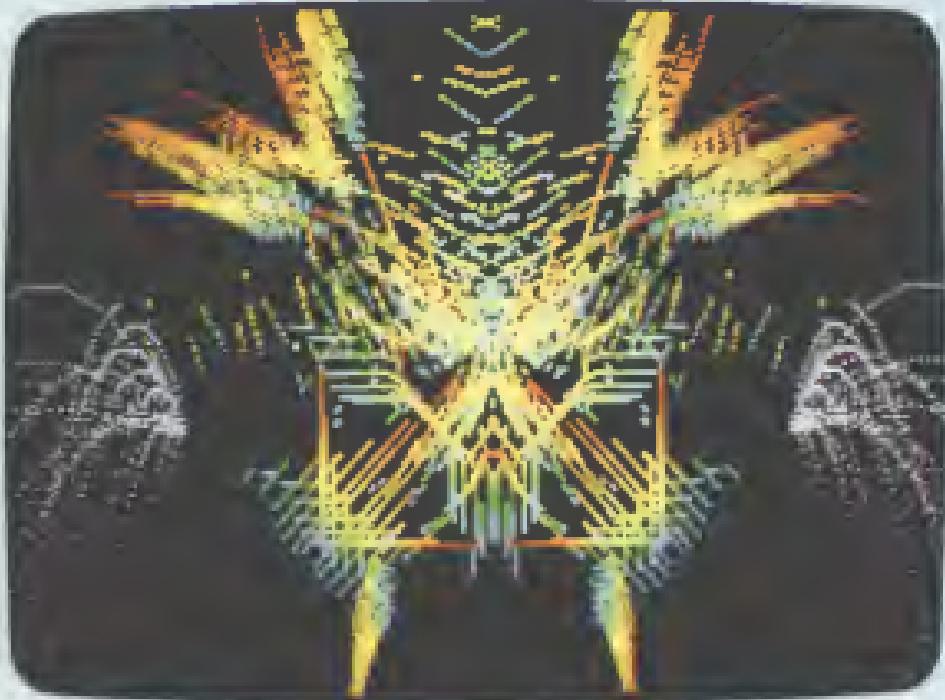
To get the maximum effect out of Colourspace the author suggests that it is served up with a liberal helping of lead music. "With Pink Floyd it is nothing short of妙," he says. (It seems that the Hippie type vocabulary has its limitations.) "But it really should be left to people's individual tastes as long as it's good and strong".

An extension has been built on to the Minter home to act as Jeff's computer room. For Llamasoft is very much a family affair. Having had his finger burned considerably a couple of times, he turned to the one person he could trust to handle his business affairs - his mother.

With much joyous after the books, Jeff retires to the computer room where he is surrounded by his collection of stuffed animals. These apparently help with the vibrations necessary for his work. After all, animals have always influenced his life. "I was into camels in a big way

Jeff Minter:
He found
inspiration for
Colourspace
on the back
of his yak

COLOURSPACE



...after the Mutant Camels, the Sheep in Space

at first," he recalls. "And this eventually led to a trip to Egypt." Jeff's next big love was sheep—"I didn't have to go out of the country to see these in their natural habitat"—followed by llamas and a trip to Peru.

The end result of these affairs were subsequently *Attack of the Mutant Camels*, *Sheep in Space* and *Urnatest! Hell!* (suppose it could have been *Sheepagon*, he says).

Such is his affinity for the creatures that Jeff gets considerably miffed about the way that people look at his friends, the llamas in particular. "They've had a very bad press," he says. "People say they are always spitting. Well no doubt they have only seen them in zoos, so

they are obviously stressed off and need to spit but when I visited Peru see him, even rolled over to lie me down in the shade. Now that can't be bad."

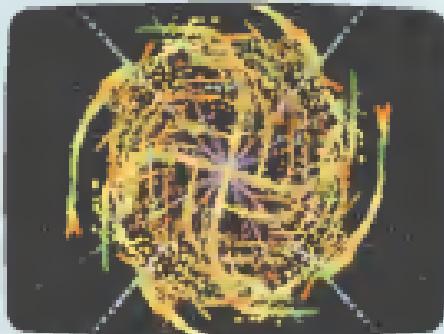
It was his latest oddity colleague, the yak, which helped with Colourspace. He spent all of £350 on this monster when he visited a London store. Then he and a friend carried it several miles through the city to their car.

Mind you, they did bring traffic to a halt when they stopped off in Leicester Square to consume Kentucky fried chicken while both sitting astride the Yak. "Since then it's always been around when I needed it..." says Jeff.

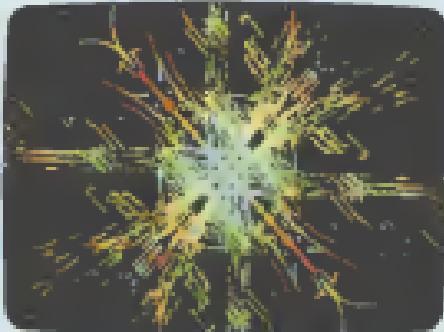
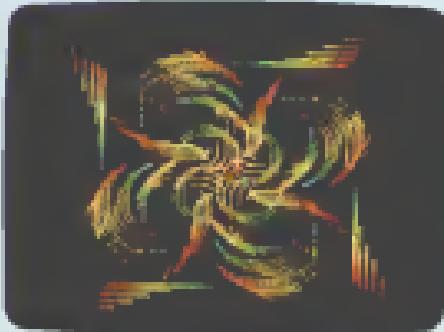
Mike Cowley

Aud 17 Jan

E bringing out all the graphic wonders of the ST



Examples of the brilliant graphic effects that can be achieved using Jeff Minter's Colourspace program on the ST



ATARI 260/520 ST

SUPERB VALUE - 'ADVENTURE TWIN PACK'

Two outstanding best adventure games (260/520) which you can buy for £24.95. This special pack combines both adventures on a single 3½" disk. Full instructions plus a helpful 'Blaggett' for Adventures are included.

Blaggett is a fast-paced action adventure which acts as an introduction to the more demanding dimensions and suspense scenarios of the classic adventure 260/520.

WEST



West

Set in a Native American Reservation around 1870.

16 user

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From Pythagoras to Midi music

WHAT is the connection between Pythagoras, Jimi Hendrix and two accolades on the back of the Atari 620ST? They all represent great breakthroughs in electronic music. Confused? Then read on.

Pythagoras, the Greek mathematician, was strolling past a blacksmith's shop and noticed that the hammers seemed to be playing a tune as they beat on the anvil. Fascinated, he investigated, weighed the hammers and discovered that the note they emitted was proportional to their weight. A hammer twice as heavy as another produced a sound half the frequency.

Pythagoras had discovered the connection between mathematics and music. Musicians in the 1930s used his principle to produce the first electronic music. When an object vibrates, the air around expands and contracts, producing a wave form which is often audible.

An electrical current flowing through a small strip of metal, via a resistor, causes the metal to vibrate and generate a simple sine wave. A sine wave looks like a cross-section of a corrugated iron sheet and the voltage applied to the metal strip determines the frequency.

The experimental musicians of the 20s used this principle to produce a steady tone with a variable pitch. This was called a sine tone generator and was the first electronic synthesiser. The sound you hear if you forget to switch off your television late at night is made by a sine tone generator.

In the 1960s modern classical composers like Stockhausen and John Cage composed music generated electronically, rather than performed by musicians. In the 1960s rock musicians began to experiment with electronic music feedback and wah pedals featured in the music of groups like Jimi Hendrix and The Who.

In the 1970s transistors replaced valves and made both computers and musical equipment cheaper and more compact. Groups appeared on stage with portable analogue synthesisers. A note played on the keyboard of an analogue synthesiser is generated electronically and then filtered and modified by a number of switches which split and mix sounds, determine the "shape" of a note by assigning a predetermined wave form, and design the envelope of a sound.

The envelope has four characteristics – attack, decay, sustain and release (ADSR) – often represented graphically. A synthesised drum sound has sharp attack, swift decay, low sustain

and sustainless. A synthesised violin has slow attack, higher sustain, slow decay and slow release.

Differences between sounds with similar shaped envelopes such as a xylophone and piano are defined by the shape of a note's wave. Analogue synthesizers can also mix and split signals and filter sound. Then see in *music* was popularised by musicians like Klaus Schulze of Tangerine Dream and Brian Eno of Roxy Music.

The next breakthrough in electronic music technology was the digital synthesizer. The low cost and wide availability of silicon chips in the late 1970s which caused the micro boom inspired a revolutionary method of recording, generating and processing music. It was no longer necessary to generate sounds by passing variable electrical voltages through small pieces of metal. Music could be stored and created in a computer program.

Music played by an instrument generated by a digital receiver such as a computer would be recorded in digital form in the memory. The process still works the other way along: synthesis can be defined digitally, amplified and played through a music system. It was no longer necessary to hold buttons and slide knobs to generate a sound.



Analogue synthesizers worked on a principle developed by Robert Moog

Digital synthesizers also allowed the wave shape of a particular note to be defined. The old analogue synthesizers were limited to a few pre-defined wave shapes. They worked on a principle developed by Robert Moog, called subtractive synthesis. A rich wave pattern such as a square wave was generated and the unwanted elements of the sound were filtered out. Digital synthesizers work on a different principle. They build up a rich sound by combining simple wave patterns.

Records and tapes could be recorded directly from a master program containing the music in digital form, rather than from a second or third generation audio tape. This had the effect of removing a producer or editor's reliance on a

Anthony Ginn looks at the historical background that paved the way for the marvellous music you can play using the 620ST



studio performance

The ability to define and edit a note's wave shape and enable sounds not available on conventional instruments or analogue synthesizers to be produced digitally.

Another feature of the new technology was its ability to sample sound. Any sound can now be recorded through a microphone, passed through an analogue to digital converter (ADC) in the computer's memory and regenerated at any pitch. You can connect a microphone and keyboard to a digital recorder (recorder, tape, disk or board it goes into the microphone and then plays a tune with notes of the sampled sound on the keyboard). This is made possible with software which first analyzes the envelope waveform and other features of the recording and then converts it to the notes represented by the keys on the keyboard.

It was always difficult to connect instruments to different computers

Digital technology enables you to bump Beethoven symphonies in the privacy of your own home... should you so desire. Live music recorded this way can be reproduced, as if played live, and controlled from a sound desk. Stereo volume and other unwanted sounds can be removed and new sounds added.

It was always difficult to connect instruments to different recorders and computers. There were problems when connecting several instruments simultaneously. They slowly stepped out of time with each other. The need to adopt a standard method of communication became obvious. Instruments and equipment spoke different languages and translation was required. A standard digital interface was needed.

The largest Japanese and American manufacturers of digital equipment got together and, in 1983, announced MIDI: the Musical Instrument Digital Interface. Computers and musical instruments from different manufacturers would at last talk the same language. A variety of instruments and recording equipment could be controlled from one computer.

A factor which influenced the final design of MIDI was cost. Home computer owners and musicians should be also to affect it. The manufacturers looked at both serial and parallel methods of transmitting data. Serial transmission was chosen (in parallel) so it was decided to send data in bytes. This has led to one of the main criticisms of MIDI, that the transmission system is too slow when controlling several musical instruments simultaneously.

Information inside a computer is stored in bytes. Each byte, in an 8-bit computer, contains eight bits. In parallel transmission the bits are

sent down separate wires, simultaneously. Serial transmission sends all eight bits down the same wire one after another. Only two wires are required, one to send and one to receive. The system has a method of checking that the correct signal has been sent by receiving parity error messages through the second cable.

MIDI has a special chip, the Motorola 68500 A/DCA - or Asynchronous Communications Interface Adapter chip. Its job is to package the eight bits of data before they are transmitted. It does this by adding two extra bits of data to each byte of information, making a 10-bit byte. MIDI transmits an average 3,000 serial words per second. Information is stored in a bit as either a 1 or a 0. A 0 is placed at the front of the byte and a 1 at the end. This 10-bit word is then transmitted either to the computer from the instrument, or to the instrument from the computer.

If the computer is talking to more than one instrument, each instrument will have an address. All instruments will receive all the instructions, but will only accept messages sent to their individual addresses. Otherwise a duet might try to play a guitar solo.

The address is transmitted in the eighth bit of data. To transmit, receive and convert data between the computer and the musical instruments must contain A/DCA chip. These chips are expensive and so prevent them being destroyed by a surge of power. During a heavy metal number perhaps? they are opto-isolated. Two unconnected electrical circuits exchange signals using photoelectric cells and set the value to protect the chip.

Using a powerful home computer as a digital recorder, with its ability to talk to low cost musical instruments, brings the means to create high quality synthesized music within reach of the public. Aten was the first manufacturer to recognize the potential and equipped its new ST range of computers with MIDI.

A computer has the potential of shaping and editing music



If you look on the back of the 620 you'll see two plugs, marked MIDI in and MIDI Out. Without Pythagoras they wouldn't be there. The 620ST is a first home computer to have MIDI as standard. It is possible to plug any MIDI interfaced instrument directly into the micro. Signals to an instrument or tape recorder are sent through MIDI Out and signals from an instrument are received through MIDI In.

The exciting thing about involving a computer in the operation is that its processing power has the potential of shaping and editing music. In the



It is possible to compose music directly on the screen without mastering the skills of playing an instrument

very way that a word processor manipulates words. Once the music is in digital form inside the computer's memory it is at the mercy of the software. As far as the computer is concerned it is just another load of 1s and 0s scrolling leisurely through the memory. A software designer writing for a Mac system can use graphics to display music on the screen.

Music notation has been more or less standardized in the West for the last 400 years. Music is written down on five-line staves and divided into bars. The number of notes in a bar depends on the length of the note and the time signature. Common time is 4/4, or four beats in a bar a waltz is in 3/4. Many short notes can fit into one bar and a long note may stretch over several bars.

It is the purpose of this article to go into the theory of music notation (if you don't understand it sit down with an instrument and ask beginner piano lessons and you'll grasp the basics within half an hour). It is not difficult. The hard part is learning to play the instrument. Most music software handles music graphically in the traditional method using the standardized notation.

Some software will edit your music up. If you put too many notes in a bar the extra notes will be moved into the next bar. There are various ways of displaying and manipulating the music. Some programs allow you to plug in an instrument and play a note, which is then displayed on the screen, on a five-line staff. This is relatively easy to do. The task becomes more difficult if the notes are to be recorded in real time. Besides having a pitch a note has a length and different length notes have different amplitude and different ratios.

If a computer is to record the duration of sound it must have a way of timing each note. If you hit one key on a piano keyboard or pressing on a guitar you play a note. If you hit several keys simultaneously you play a chord. Some synthesizers only allow you to play one note at a time. These are called monophonic synthesizers. More sophisticated machines can cope with more channels. These are polyphonic synthesizers and can play chords and multiple

melodies. Connecting a microphone to a monophonic synthesizer will not turn it into a polyphonic synthesizer.

The way a note is played also affects its quality. Sometimes a piano bangs the keys down hard, sometimes gently, creating two sounds from the same key. Some synthesizers have this facility.

It is now possible to compose music directly on the screen without mastering the skills of playing an instrument. This is one of the great advantages of electronic sound. It is no longer

Thanks to Pythagoras, Jimmy Hendrix and the Atari 520 ST

necessary to play an instrument to make music. You can put notes on to staves with a mouse cursor key or even a light pen, define the ending and get the computer to play the music.

As well as the pitch and duration of notes, the computer can also define the tone. A quarter at middle C looks the same on a sheet of music whether it is played by a violin or harmonica. The tone is determined by the factors we discussed earlier: envelope shape, wave shape and so on.

A good program allows easy definition and editing of these features. Newly defined voices and instruments are then assigned numbers. The resulting composition can be edited on screen. The computer sends the music to a digital-to-analog converter which converts it to an analogue voltage. This is the type given out by a recorder or tape deck and can be played through an amplifier and speakers in the usual way via an audio cassette.

Pythagoras, Jimmy Hendrix and the 520ST have made it possible to fill your home with your own electronic music. In a later article we will look at the software that is on the way to help you do this with your ST. My thanks to Andy Beale for help with this article.





THE 520ST. OVER QUAL

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APPENDIX ZZJJ

卷之三

1. *Leucania* (L.) *Lutea*
2. *Leucania* (L.) *Excellens*
3. *Leucania* (L.) *Excellens*
4. *Leucania* (L.) *Excellens*
5. *Leucania* (L.) *Excellens*
6. *Leucania* (L.) *Excellens*
7. *Leucania* (L.) *Excellens*
8. *Leucania* (L.) *Excellens*
9. *Leucania* (L.) *Excellens*
10. *Leucania* (L.) *Excellens*



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QA

Making the most of your ST

WHEN any machine is launched, it's inevitable that new users will have lots of questions they want answering.

That's where this section of *Atari ST User* is for. Be whatever your query on Atari ST hardware and software, this is the place to get them answered.

Until your questions start flowing in, I'll spend some of this and next month in column discussing a couple of commands in Basic that allow you to access the very heart of the Commodore system.

On pages C-57 and C-58 of the ST's Basic manual you may have noticed two strange looking commands called GEMSYS and VDISYS. These are explained rather briefly in only one page each, but they require far more discussion. Using them you can gain access to some of Commodore routines that are not normally available from Basic.

The GEMSYS command gives access to the half of GEM called the application environment services, or AES. The VDISYS command allows you to use the other half of GEM called the virtual device interface or VDI. The AES deals with windows, alert boxes, menu bars and the mouse. All its routines are used in the control of objects on the screen. The VDI contains all the routines to do such things as draw lines, fill areas and write text. It takes care of everything that is placed on the screen.

This month I'll be looking at the VDI routines and the VDISYS command. Next month I'll be discussing the GEMSYS command and AES.

The VDISYS command is followed by one number in brackets. This is known as a dummy parameter because its value has no effect.

VALUE	1	2	4
NAME	BOLD	GREY	ITALIC

Figure 1

Values are passed to the VDI via three variables - GDISYS, PTSM and INTIN.

To pass values to the VDI you simply poke these values into the correct variables - for example FDISK CONTROL 0 - and then call the VDI with VDISYS(1). Searching through the VDI manual, which is only supplied to software houses, I have found four VDI routines that do not have an equivalent Basic command and therefore can be used to great effect in your programs.

The value that must be poked into the variables are given in Figure 1. I have included a demonstration program for each routine so that you can type them in and see for yourself. Here is a quick explanation of what each one does.

INTIN draws a filled box and can be used to clear off rectangular areas of the screen very quickly. You must poke the coordinates of the box's upper left and lower right hand corner into PTSMN. See the demo program to see how it's done.

CHARACTER HEIGHT lets you place text on the screen in a variety of different sizes. The required height is poked into PTSMN+2. The normal height is 13. See the demo program for more information.

CHARACTER SLANT gives you the ability to print characters sideways and upside down. The angle is in the range 0-3600. Hundreds of a degree must be poked into INTIN. However, only 0, 900, 1800 and 3600 will produce any result. See the demo program.

TEXT TYPE allows you to print text in different ways. The types available are bold, italic, underline, shadow, outlined and gray. You simply poke the required type into INTIN according to Figure 2. If you wish to mix any of the types, simply add their values together; for example to get underline/bold the value is 8 and poking the value into INTIN. To return to normal you must poke INTIN with zero. See the program for more details.

The first problem to come in was from K. O'Connor, from Leominster. He wants to keep an address file on disc and wishes to know

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COMMAND		PTSM				INTIN	
+0	+2	+6	+10	+8	+2	+4	+8
GDISYS	11	2	8	1	N	T	A
LAYER	12	1	8		P	BT	
CHAR SLANT	13	0	1				
TEXT TYPE	000	0	1				

VDI ROUTINES

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how to read and write files to disk. This can be accomplished in a Basic program using the Open, Input#, Print# and Close commands that are discussed in full in the Basic manual.

Writing such a program is not a difficult task, but could take quite a long time. A better solution would be to set up an address database using the free program - AddressOne. Using this program you could set up an address file and search through it, sort it and manipulate it in a hundred and one ways that would be difficult to do by hand.

A tip in time...

- If you find that memory is running short you can save a file by using some techniques from your system disk. First make a backup of the system disk! The assemblies are held in two files on the system disk, called Dent1.scc and Dent2.scc. Dent1.scc contains the control panel and printer recall assemblies and Dent2.scc holds the RS232 configuration and VT-52 terminal.

Decide what you can do without and then write the relevant file. For example if you never use the RS232 serialise and don't use the VT-52 terminal you should delete Disk2.soc. Doing this will save you some 6200 bytes. Deleting Disk1.soc will give you 19400 bytes which you can use for applications and RAR files.

- If you haven't already obtained the latest set of labelled software, then you should ask for your dealer until he gives you copies. The latest set comes on three white labelled discs and is made up of Allegrocode (Very good extended general font library), Twain (scanner), Utilitaire (One utilities program) and Goudie (Very simple drawing program).

- If you have a program that you always run as soon as you have booted your BT such as a RAID class, you can make it run automatically using the following method. First back-up your system disc. Next create a folder called AUTO on the system disc.

```
1000 REM -----CHARACTER SIGHT-----
1010 REM
1020 REM FULLER I = DEEPAK 2 = COOLIO 3,4,5,B,D
1030 REM 6 = GENE, 7 = TIG
1040 REM 8 = BOMBEH, 9 = B
1050 REM 10 = CORTINELLA, 11
1060 REM 12 = THE TOWER STAR 13
1070 REM 14 = BOMBEH, 15 = MUSIBULI
1080 REM 16 = GENE, 17 = TIG
1090 REM 18 = B
1100 REM 19 = B
1110 REM 20 = B
1120 REM 21 = B
1130 REM 22 = B
1140 REM 23 = B
1150 REM 24 = B
1160 REM 25 = B
1170 REM 26 = B
1180 REM 27 = B
1190 REM 28 = B
1200 REM 29 = B
1210 REM 30 = B
1220 REM 31 = B
1230 REM 32 = B
1240 REM 33 = B
1250 REM 34 = B
1260 REM 35 = B
1270 REM 36 = B
1280 REM 37 = B
1290 REM 38 = B
1300 REM 39 = B
1310 REM 40 = B
1320 REM 41 = B
1330 REM 42 = B
1340 REM 43 = B
1350 REM 44 = B
1360 REM 45 = B
1370 REM 46 = B
1380 REM 47 = B
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1400 REM 49 = B
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1420 REM 51 = B
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1870 REM 96 = B
1880 REM 97 = B
1890 REM 98 = B
1900 REM 99 = B
1910 REM 100 = B
```

Our thanks also goes to the other members of the team.

Customizing In it you must place the program that you want to auto run. Now when you boot the system with that system disk and booting has finished the usual blank screen will be replaced with the menu's either than the diskinfo

Well that's it for another month. As one last piece of advice I'd recommend that you go to the Auto Show if at all possible. All the software that you've heard about during the last few months will be on show and you'll be able to have a good look at new hardware such as the ST-500 drive from Acer. I should be at the show on Friday March 11th so see you there.



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Superscript: The latest word in word processors reviewed

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SuperScript

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News

All the latest developments in the expanding world of Atari computing, including news from the big Consumer Electronics Show in Las Vegas.

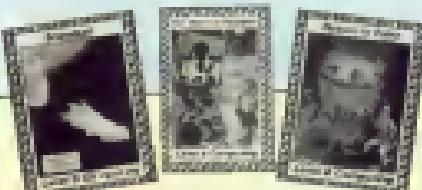
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Order everything you need on this one handy form

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More programs on way

A MDT division of publishers Software Express has been created to boost the number of programs available to Atari users.

Already it has reached a number of license agreements that enable it to import a range of products from the US and to get British software distributed in America.

A key element in the new venture is Program Exchange, an open invitation to professional software houses and individual programmers alike to join in the venture.

"With the current situation that of a revised copyright publishing software from many sources under one label," says Jim Davis, former Atari UK product manager who is in charge of the project.

"We would welcome the opportunity of selecting software from professional and amateur authors."

David offers some programmes have the best new ideas and approaches to software but their programming skills are weak. If you have skills and the time to merge we'll work with the author to make that program a quality title."

The ST version will be launched officially at the Atari Computer Show at the Royal London this month and then also details of the first batch of titles will be issued at the same

JACK TREMEL, Atari's educational chairman, will be putting across the Atari booth a plenty of STs to showcase the *Atari Computer Show* in London.

The show that takes place in the Champs Elysees of the Marais, Paris on March 7 to 9 is the first Atari-specific exhibition to be held anywhere in the world.

Jack's presence indicates the significance he attach to it, says Rob Heding, Atari UK sales and marketing boss.

"We see it as the perfect launching pad for some exciting new developments which for the moment must be kept under wraps."

As well as referring to comments on rumours from the sources that Tremel will be attending a press conference during his London stay.

However, other major exhibitions at the show are not planned at quite so high-profile.

The latest survey by Atari User has confirmed that well in excess of 100 new packages will be provided at the show.

Of these some two thirds will be based on the 8 bits machines - the 600XL and the 130XL - while the remainder



And Jack Tremel will be there...

are for the 16 bit ST range.

One company alone will be unveiling more than 40 new products from engineering in the United States.

Software Express and its subsidiary SEDS has announced that their launch as part of the group's bid to dominate the Atari market in the UK.

The most interesting contribution is likely to be Gaforth's programming language for the 8 bit machines. Beta testing is set to proceed in £24.99 on disc.

Yet another Atari market leader, Silico Ships, will be launching at least 20 new products at the show. One

again more will be American imports being brought over for the first time under license.

Microdeal has also jumped on to the American product importing bandwagon. The company has linked up with Microline, one of the USA's main publishers for the ST.

As a result Microdeal will be offering three products for the ST including Time Doctor, a multi screen graphics arcade adventure, and £29.95 the Microline Utilities Programme Disc Zap which enables programmes to load at request of a disk or search for strings of characters, just £39.95, and Microline's own unique conversion software costing £49.95.

Microline president Gordon Monnier and Time Doctor programmer Timothée Poirier will be at the show to provide advice.

Not to be overshadowed by the American companies, Microdeal will be showing Disc Parts, a programme that removes programs for the ST costing £29.95 on disc.

Companies have been pulling out all the stops to ensure that the first Atari Computer Show will be a truly memorable event, says David Martin, head of Database Publishers, the show's organisers.

"I'm sure Jack Tremel is going to be delighted with the results."

New deck

The 20011 replacement for the 1510 classic deck has been released by Atari.

It is built by a major Japanese manufacturer as powered by the computer and matches the 1510's styling. Price is £25.

It is currently only of Atari 8 bit machines but will be specially built with the 130XL at a price of £149 according to an Atari source.

ST EDUCATION BARGAIN

In a special offer for educational establishments, Atari has bundled the 520ST with 256K, disk drive, 12in monochrome monitor and mouse for £199, a saving of more than £150 over normal retail prices.

The same system with a 16in colour monitor costs £299 - £100 cheaper than the normal retail price. A

software pack including the Word, a wordprocessor based on Microsoft's Word Processor One, a database, ST Basic and Large programming languages is included with both packages.

Atari marketing manager Rob Heding said: "The 520ST is making a major impact in education, with universities, colleges and

local authorities already purchasing in quantity."

The 520ST's leading edge technology at prices comparable with the domestic versions in education today will lead to the machine becoming the standard educational tool".

The special prices to educationalists are in force until the end of March.

Atari's out of the red

ATARI has witnessed a dramatic turn around in its fortunes during the fiscal financial year with John Trudell at the helm. It is now firmly back in the black after recording a deficit of \$100 million during the previous 12 months.

"We took an ailing company, with

sustainable losses, and we have come out with an overall profit", says Trudell, Atari UK's boss, held Atari West. "We were now in a position of considerable financial strength because we not only know what we are doing, but are convinced our direction is right."

Colours by the million

All the colours of the rainbow – and a few million more besides – are offered by Technicolour Dreams, a graphic art utility for the Atari II for just £19.95 from Red Kart Software.

The program enables the user to create pictures containing the whole palette of 256 colours – 16 shades x 16 brightness – which the Amiga can display on the screen at the same time.

And because a further 128 lines can be used to fine-tune colours, the Atari's graphic capabilities are extended to more than eight million end colours.

Stephen and Marc Gifford continue the program on the current Amiga to real painting. We have a desire for colours in electronic form and as many colours as Van Gogh could ever have wanted.

Pictures produced with Technicolour Dreams can be flipped into edit mode and stored in memory while being worked on or dumped to an I-beam (8080 F880) or similar printer and saved on to tape or disc in compressed form.

Technicolour Dreams costs £19.95 on cassette and £12.95 on disc.



HI-TECH ZOO BEARS

At London recently for the Big Top was Nolan Bushnell, the pioneering electronic wizard who created the video revolution in the 1970s with the first coin-operated TV game, Pong, and went on to found Atari.

When Nolan sold Atari to Warner Communications, he never gave up his dream of developing any electronic game as toy for street kids.

But now that his own company, Bushnell, is up, Nolan is

back on the board, and based in a California-based company called Action.

He has turned his playroom genius to creating educational toys. They are filled with all kinds of unusual electronics that make them do fun things to challenge a child's imagination – like A.G. Bear, a high-tech teddy bear that talks back to you in numerous languages.

• Action and Bushnell, see page 100 of this issue of Computer Disk.

Canadian sales up

AFTER experiencing initial difficulties in getting up an ST dealer network in Canada, Atari has now resolved its problems and sales are going well according to reports.

Limited software availability had been cited as the main reason for dealer resistance to franchise agreements but the growing number of ST programs being produced in the USA, in particular seems to have overcome this Canadian STUC concern to take off. In addition,

General manager for Atari in Canada, Jim Kennedy, has said that current sales of the ST are being on target, and he expects 60,000 will be sold there within the next few months.

Applause has more than 130 dealers throughout Canada and more are being signed up each month.

OS goes on ROM

THE ST operating system is now available on ROM.

Unprices, installing the set of five necessary chips are available for installation at all main dealers at a cost of £25.

Big Top thrills

A CD-ROM intended to capture all the thrills and spills of the Big Top has been released by Infocom for the BBC400, the 13860 and 13880.

Balloon is an interactive mystery in which the player takes on the role of cartoon town crier-piper straight up to hollering.

Balloons need to land before balloon stars burst, passes solved and dangers cleared in order to gain the release of the captive, the overjoyed daughter.

A colorful circus program introduces the characters and is included in the package with balloon rods and a robot to Spangleland. Price £25.95.

US borrows UK techniques

MARKETING methods refined in Britain are being copied by Amico Corporation in America.

Building massive retail software and peripheral packages to make up application packages has become common practice in the US.

This factor played a big part in helping the British home comp-

puter industry pull off the trade淡季 by advertising sales.

This lesson hasn't been wasted on the Americans by some bundling in a novel concept: ready-made.

But now Amico has decided to market the 13860 in the US as a complete starter package for engineering and scientific

processing.

For \$299 the purchase gets the 13860 with monitor, power disc, keyboard and four software titles – two games plus Shareware Painter, Paint and Adventure.

Amico is also putting together a package including the 13860 which is expected to retail for between £300 and £350.

visiting the 1981 Winter Consumer Electronics Show in Las Vegas, it was hard to believe it was only 12 months since Atari introduced the C64. Brightlight with prototypes of the ST and 3D2 computers.

The question then was: What about the software? One 520ST and 13000 launch titles for the new C64 (400K total) was deemed insufficient by both manufacturers, resulting in a spate of software.

The only hardware consisted of two STs and two 13000s and one made each of the 520ST, 2600V and 1500.

I asked Jack Tramiel how Atari was faring one year on. He replied: "Very good. We still have lots to do but we're very good."

Company president Steve Traub went further: "With the introduction of C64 of creating new products and programs has been encouraging that this is the time. And a revitalized company with a clear ability to develop Market segments."

"We're the fastest growing manufacturer of popularly priced computers and the leading manufacturer of video games."

According to Steve programming for the ST is the fastest growing sector of the computer market with 1,000 companies worldwide producing software for the range.

Atari has announced expand-

Atari steals the show at Las Vegas

and distribution plans for the 520ST in the USA - resulting new quantity discount rates - but in a strategy intended to keep the most powerful machine more like the 1040ST as a hardware destination.

The 1040ST announced at the show and oriented as a business system is similar to the 1300ST but contains 1 megabyte

as well as a 30MHz processor clocked down for the ST designed to reduce the increased power requirements for most professional applications.

One ST at the show had been modified for two demonstrations from a garage software house.

The only new Brightlight demonstrating their latest title marketed by Activision, The Mouse Doctor. According to the ST to the ST was a Castle C2001.

Music Studio which runs under Basic has audio capabilities to record 16-bit Music Boxes and can generate some music and has the ability to edit up to 15 sounds or instruments.

Atari once again threw down the gauntlet saying: "We Bring You To Campus" and showed the Campus edition. Using a 1300ST, Apple Macintosh 320K and three new 520STs fitted with color monitor running a demonstration called BASIC - a 3D ball bounces across the screen and bounces.

The Mac with its massive colour display was visibly

of RAM, a built-in 2.5 inch double-sided, double density drive and has TOS on ROM.

Software includes Basic, 16-Bit Mac and Macintosh and the machine is selling in the USA now at \$1,699.95 with colour monitor and \$1,899.95 international.

Atari also announced plans for the 1300ST including a built-in RF modulator enabling television TV sets to be used as a package price with colour and monochrome monitor of less than £200.

A new peripheral announced

shows and helped prove its compatibility with the colour computers.

Atari's point come across At a time when Commodore is using the Amiga to badger the ST, Atari's competition proves the ST to be just as fast and capable - and at a better price.

A memory pack has been introduced for the US market featuring the 13000, 1040ST, 1300 and colour printer. 1050, 2.5inch disk drives and five software packages - a personal finance manager, Star Reader, game, simple mouse and graphics packages plus Activision Plus. At £495, Justice would processor. All this is shipped at £2,225.00.

In its support to education, ST kit products are on offer putting all resources behind the ST.

Kit product manager John Skellern gave a surprising answer. Atari has an ongoing commitment to all owners of ST computers. In addition to the 520ST, 1040ST and 13000, we have launched a new model 1050 and the AGT1 computer drive.

Any software titles? One new 1050 package features three new titles including Asteroids Plus and other titles such as Pinball and Pinballer should be available in the UK early March.

Star Reader is due for launch this year. This later processor at the show concluded with The Last Starfighter.

Third-party software support? "New titles are being announced all the time. Many companies are coming back to the ST who have been away for a while."

One final revelation from Atari was that a Game type package will be available for the ST using Amiga-like software.

A new President, Eric Morillo DeJoria has been appointed to oversee the changes whilst Michael V. Katz there is no indication of a continuing red growing market for video games.

* Alan Dunn, former project manager at Atari UK, is managing director of STS, a division of Software Express.



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Now the Alien Attack gets under way

I CONCLUDE this short series by completing our examination of the assembly language listing of Alien Attack. Figure 1 is a list of the data that is used to create the Player shapes.

DELAY

200

Retrace machine code operations are very fast compared to BASIC; a delay routine needs to be incorporated in Alien Attack to slow things down a little. This routine decrements the A register from 1000 to 119 times instead of 1000/100 (99 x 10). This is similar to the BASIC routine PGR DELAY = 1 TO 10 : NEXT DELAY.

The address 38082 stores the number of cycles which is actually at 20. This number is altered at various points in the program to increase or decrease the timing of the delay. By setting 38082 to 100 during the ship explosion routine gives a much longer delay as the game counts through 14781 cycles (99 x 149).

SHIP

• Lines 320 to 390 control the movement of the ship.

120

The current vertical and horizontal coordinates of the ship are transferred to the X and Y registers.

330

Address 602 is checked to see if the switch has been moved. If moved then the X and Y registers are

Part III of STEPHEN WILLIAMSON'S series on how to produce your own machine code games



then current horizontal and vertical positions of Alien 1.

420-440

The shape of Alien 1 is plotted in the Alien 1 player range (38144 to 38155) indexed with Y1.

450

Y is stored in 38142 and 38155 indexed with Y0 to store pixels previously plotted at the top and bottom of the Alien 1 shape.

The accumulator is loaded with whatever value is held in address 20. Address 20 is part of the Alien clock system and the value held in the address changes rapidly. This is used to provide a pseudo random number and thus plot a random flight path for Alien 1.

Many arcade games suffer from the fact that few or no random elements are included so that after playing for a while we learn to anticipate the movement of monsters or alien invasions. In Alien Attack the flight paths of the Aliens conform to a general pattern but by using the routine it is impossible for the player to predict at what point an Alien will change direction.

By performing an arithmetic shift left (ASL A) on the accumulator the carry flag is set or not depending on whether bit 3 of the accumulator is 01 or 00. The carry flag is checked – it will either be 0 (bit off) or 1 (bit on) and if not set Y is increased to provide a new vertical position for Alien 1.

The horizontal position of Alien 1 is checked to see if it has reached the right hand side of the screen.

coordinate 1281 and if so Alien 1 must change direction and the Alien 1 direction flag held at 206 is changed.

480

A similar check is made on the left-hand position and if the Alien has reached there (coordinate 201) then the direction flag is changed X is increased or decreased according to the direction flag.

490

The vertical position of Alien 1 is checked to see if it has reached the bottom of the screen (loc. Y loaded with 0 ready to start the Alien off again from the top of the screen).

500

The updated horizontal position is stored at address 53246, alien 1 position register, and X and Y coordinates are stored in the alien 1 horizontal and vertical stores.

ALIEN 2

- Lines 480 to 560 handle the movement of Alien 2 in the same way as Alien 1. The only difference is that instead of the ABS惺 operation to create a pseudo random number the LSRAA instruction shift right operation is performed in line 560.

ALIEN 3

- Lines 560 to 640 handle Alien 3 movement. Line 560 performs a similar arithmetic shift operation to Alien 1 but the result instead of acting on the vertical coordinate acts on the horizontal coordinate to give a different type of random flight pattern.

PAUSE

- Lines 670 to 740 handle the firing of the ship missile.

840

Address 840 is checked to see if the fire button has been pressed. If not pressed then the program jumps 20 bytes to avoid creating a new missile.

880

The ship missile test flag (param 1338) is checked to see if a missile is already

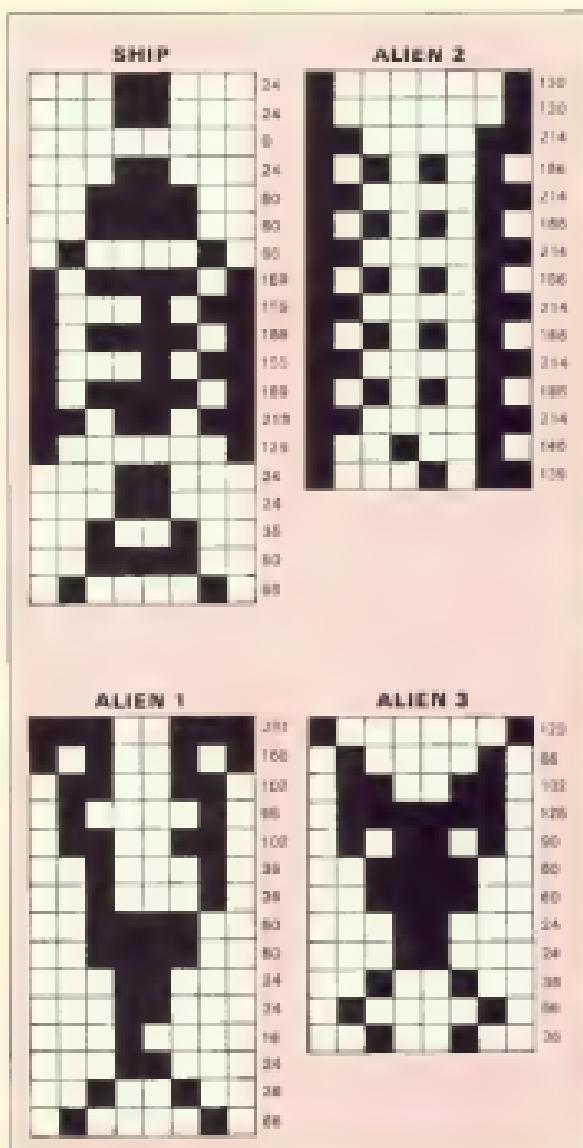


Figure 1: Ship and alien move data

on the screen. If no screen then no further missile can be fired and the program jumps 15 bytes to avoid the new missile creation routine.

860

A 2 is added to the horizontal position of the ship to give the horizontal coordinate value of the missile so that when the new missile is plotted it will appear in the correct position above the ship. The horizontal position is stored in the ship missile horizontal register (address 828522). It is stored in address 828520 and 828511 followed with Y1 plots a pixel on the ship missile stage.

780

Since 1633, which holds the canon ship missile vertical coordinate, is checked to see whether it has reached 4, which means that the missile has gone off the top of the screen. If so, the missile need be plotted no further and the program exits from this routine.

710

A 1 is plotted in the player missile stage for the ship missile indexed with Y1. Y is decreased so that the missile will move up the screen the next time the program reaches the fire routine.

730

The value of Y is stored in sound channel 1 pitch register (823102) to give the missile sound effect. A value of 170 sets the volume for sound channel 1. A zero in address 827481 gives pure sound.

735

If the vertical position of the missile has reached 4, this again means that the missile has gone off the top of the screen and the missile flag in 16361 is set to 0 to allow another missile to be started. The sound channels are also switched off if the missile is off the screen.

8000

■ Lines 780 to 810 handle the movement of the alien missiles.

780

A similar routine to that used to determine the flight pattern of the ships is used to provide a random register (R or R1) and the decide whether the Alien 1 missile is

dropped. If the carry flag is clear then no missile is dropped and the program jumps 26 bytes.

If the carry flag is set the start position of the Alien 1 missile is set to the current Alien 1 position plus 2 so that the missile first appears on the screen immediately below the middle of Alien 1.

730

A 4 is loaded in the Alien 1 missile flag store at 16260 and the vertical coordinate stored in 16261.

780

If the Alien 1 missile register is cleared (000) and therefore Alien 1 has



been destroyed, the program jumps 31 bytes to avoid plotting the missile.

800-803

A 4 is plotted in the Alien missile stage (17647 to 17649) indexed with Y1 to create the Alien 1 missile. O creates the pixels previously plotted at the top of the missile.

Y is increased by 1 ready to plot the missile further down the screen the next time this routine is reached. Y1 is stored in the missile vertical store and checked to see whether it has reached 240 and is therefore off the bottom of the screen. If so the missile flag is set to 0 and Y decreased so that the missile stays off the screen and a new missile can then be plotted.

Alien 2

■ Lines 810 to 880 handle movement of the Alien 2 missile in a similar fashion to that of Alien 1 missile. The new missile is dropped if the carry flag is set (000) and R1 from line 780

is cleared so that the Alien 2 missile is dropped at a different time to that of Alien 1.

Alien 3

■ Lines 880 to 910 deal with the Alien 3 missile in the same manner as that of Aliens 1 and 2.

Conclusion

■ Lines 920 to 1080 control the collision between the alien or alien missiles and the ship.

940

During the development of the program it was found that player pixels were implemented at the bottom of the screen. Instead of reusing the alien and ship subroutines it was simpler to add line 940 a routine that clears the bottom of the player pixels of any debris that has gathered there.

Because machines such as the BBC micro can make no discernible difference to the speed of programs it is often easier and simpler to edit routines to solve the symptoms of a bug in the program rather than spend a long time hunting through the program to find the bug.

940

This line checks the collision direction register to see whether the ship has been hit by an alien or alien missile.

950

If the ship has not been hit the program jumps to the fall subroutine to find out whether the ship missile has hit an alien.

1000

All the sound registers are cleared.

1050

160 is stored at address 28082 to slew down the deadly routine.

880-883

The ship colour register (17041) is loaded with 88 to turn the ship red. 84 is stored at address 280738. 146 is the channel 0 volume register (153781) and 145 is stored in the channel 0 patch register (837482). This combination provides the best for the white noise explosion sound effect.

The X register is stored at 1544 so that it can be increased after the deadly routine has been executed. A loop



decreases X from 144 to 128 to run the explosion stored and flash the screen background colour between red and black. 63 stored in address 710 gives red and 0 plus black.

The formula for calculating the colours to put into colour registers is:

value = colour * 16 + brightness

1028-1030

Initialisation operations to run the game after the ship has been destroyed.

1000

Sets the starting coordinates of the ship.

1010

Clears the sound registers.

1020

Clears the P/M data stages.

1030-1040

Alien and missile scores are cleared.

1050

The alien attack registers are cleared and the delay timer reset to 20.

1060-1080

Score 1060 which holds the number of levels left is reduced by 1. If no lives are left, then the subroutine return address is pulled off the stack by the use of PLA PLA and the program returns to Reset.

It clears the lives left indicator at the top of the screen and according to how many lives are left characters (character 96) are displayed at the top of the screen (address 24000).

1090

Ones 1090 to 1230 handle the collision between ship/misile and alien.

1100

The collision detection registers are checked to find out if an alien has been hit. If yes then the programme returns from the subroutine. X is loaded with a value depending on which alien has been hit.

1110

64 is stored at 53760 and the sound registers cleared.

1120-1130

A loop is set up to reduce the Y value

from 144 to 127 to create an explosion type sound similar to the end of the collision routine. The delay timer is not changed so that the game halts only briefly whilst an alien is hit.

The colour register is indexed by X so that the Alien that has been hit will change colour to red (60). Whenever the program returns to the Alien placing routine, a red alien will be placed off the screen.

1140-1150

Initialisation and clearing routines.

1160-1180

These two handle the increment of the score.

Scores 1547 to 1549 hold the character values of the score (16 to 24). A value of 16 in character 0 when displayed on the screen and 25 is character 9.

The score increment routine can be thought of as similar to the procedure that we go through when first learning to add up 1 to 3 digit numbers. For example, suppose 123 meant that 3 is in the 1s column, 2 in the 10s column and 1 in the 100s column. Score 1069 keeps track of the 1s 1548 the 10s and 1547 the 100s.

If the value of the 1s has not reached 25 for score 99 then the 1s is incremented by 1 and the 10s and 100s left alone. If the value of the 1s has reached 25 for score 99 then the 1s must be reset to character 16 (0) and the 10s incremented by one to give a score of 10, 20, 30 and so on.

If both the 1s and 10s have reached a value of 25 (equivalent to character 9) the score = 25, 199, 299 and so on and both the 1s and the 10s must be set to zero and the 100s incremented by 1 to give a score of 100, 200, 300 etc.

Finally the 1s, 10s and 100s are displayed at the top of the screen to show the current score.

1210

All alien colour registers are checked to see if they are red (52).

1220

If all aliens are not the timing register at address 39063 is decreased by one. Each subsequent wave of aliens will then be faster. This ensures that the skill needed to play Alien Attack increases the longer the game is played as shooting the player loses

100	101	102	103	104	105
0000	0000	0000	0000	0000	0000
0001	0001	0001	0001	0001	0001
0002	0002	0002	0002	0002	0002
0003	0003	0003	0003	0003	0003
0004	0004	0004	0004	0004	0004
0005	0005	0005	0005	0005	0005
0006	0006	0006	0006	0006	0006
0007	0007	0007	0007	0007	0007
0008	0008	0008	0008	0008	0008
0009	0009	0009	0009	0009	0009
000A	000A	000A	000A	000A	000A
000B	000B	000B	000B	000B	000B
000C	000C	000C	000C	000C	000C
000D	000D	000D	000D	000D	000D
000E	000E	000E	000E	000E	000E
000F	000F	000F	000F	000F	000F
0010	0010	0010	0010	0010	0010
0011	0011	0011	0011	0011	0011
0012	0012	0012	0012	0012	0012
0013	0013	0013	0013	0013	0013
0014	0014	0014	0014	0014	0014
0015	0015	0015	0015	0015	0015
0016	0016	0016	0016	0016	0016
0017	0017	0017	0017	0017	0017
0018	0018	0018	0018	0018	0018
0019	0019	0019	0019	0019	0019
001A	001A	001A	001A	001A	001A
001B	001B	001B	001B	001B	001B
001C	001C	001C	001C	001C	001C
001D	001D	001D	001D	001D	001D
001E	001E	001E	001E	001E	001E
001F	001F	001F	001F	001F	001F
0020	0020	0020	0020	0020	0020
0021	0021	0021	0021	0021	0021
0022	0022	0022	0022	0022	0022
0023	0023	0023	0023	0023	0023
0024	0024	0024	0024	0024	0024
0025	0025	0025	0025	0025	0025
0026	0026	0026	0026	0026	0026
0027	0027	0027	0027	0027	0027
0028	0028	0028	0028	0028	0028
0029	0029	0029	0029	0029	0029
002A	002A	002A	002A	002A	002A
002B	002B	002B	002B	002B	002B
002C	002C	002C	002C	002C	002C
002D	002D	002D	002D	002D	002D
002E	002E	002E	002E	002E	002E
002F	002F	002F	002F	002F	002F
0030	0030	0030	0030	0030	0030
0031	0031	0031	0031	0031	0031
0032	0032	0032	0032	0032	0032
0033	0033	0033	0033	0033	0033
0034	0034	0034	0034	0034	0034
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0037	0037	0037	0037	0037	0037
0038	0038	0038	0038	0038	0038
0039	0039	0039	0039	0039	0039
003A	003A	003A	003A	003A	003A
003B	003B	003B	003B	003B	003B
003C	003C	003C	003C	003C	003C
003D	003D	003D	003D	003D	003D
003E	003E	003E	003E	003E	003E
003F	003F	003F	003F	003F	003F
0040	0040	0040	0040	0040	0040
0041	0041	0041	0041	0041	0041
0042	0042	0042	0042	0042	0042
0043	0043	0043	0043	0043	0043
0044	0044	0044	0044	0044	0044
0045	0045	0045	0045	0045	0045
0046	0046	0046	0046	0046	0046
0047	0047	0047	0047	0047	0047
0048	0048	0048	0048	0048	0048
0049	0049	0049	0049	0049	0049
004A	004A	004A	004A	004A	004A
004B	004B	004B	004B	004B	004B
004C	004C	004C	004C	004C	004C
004D	004D	004D	004D	004D	004D
004E	004E	004E	004E	004E	004E
004F	004F	004F	004F	004F	004F
0050	0050	0050	0050	0050	0050
0051	0051	0051	0051	0051	0051
0052	0052	0052	0052	0052	0052
0053	0053	0053	0053	0053	0053
0054	0054	0054	0054	0054	0054
0055	0055	0055	0055	0055	0055
0056	0056	0056	0056	0056	0056
0057	0057	0057	0057	0057	0057
0058	0058	0058	0058	0058	0058
0059	0059	0059	0059	0059	0059
005A	005A	005A	005A	005A	005A
005B	005B	005B	005B	005B	005B
005C	005C	005C	005C	005C	005C
005D	005D	005D	005D	005D	005D
005E	005E	005E	005E	005E	005E
005F	005F	005F	005F	005F	005F
0060	0060	0060	0060	0060	0060
0061	0061	0061	0061	0061	0061
0062	0062	0062	0062	0062	0062
0063	0063	0063	0063	0063	0063
0064	0064	0064	0064	0064	0064
0065	0065	0065	0065	0065	0065
0066	0066	0066	0066	0066	0066
0067	0067	0067	0067	0067	0067
0068	0068	0068	0068	0068	0068
0069	0069	0069	0069	0069	0069
006A	006A	006A	006A	006A	006A
006B	006B	006B	006B	006B	006B
006C	006C	006C	006C	006C	006C
006D	006D	006D	006D	006D	006D
006E	006E	006E	006E	006E	006E
006F	006F	006F	006F	006F	006F
0070	0070	0070	0070	0070	0070
0071	0071	0071	0071	0071	0071
0072	0072	0072	0072	0072	0072
0073	0073	0073	0073	0073	0073
0074	0074	0074	0074	0074	0074
0075	0075	0075	0075	0075	0075
0076	0076	0076	0076	0076	0076
0077	0077	0077	0077	0077	0077
0078	0078	0078	0078	0078	0078
0079	0079	0079	0079	0079	0079
007A	007A	007A	007A	007A	007A
007B	007B	007B	007B	007B	007B
007C	007C	007C	007C	007C	007C
007D	007D	007D	007D	007D	007D
007E	007E	007E	007E	007E	007E
007F	007F	007F	007F	007F	007F
0080	0080	0080	0080	0080	0080
0081	0081	0081	0081	0081	0081
0082	0082	0082	0082	0082	0082
0083	0083	0083	0083	0083	0083
0084	0084	0084	0084	0084	0084
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0087	0087	0087	0087	0087	0087
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0089	0089	0089	0089	0089	0089
008A	008A	008A	008A	008A	008A
008B	008B	008B	008B	008B	008B
008C	008C	008C	008C	008C	008C
008D	008D	008D	008D	008D	008D
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008F	008F	008F	008F	008F	008F
0090	0090	0090	0090	0090	0090
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0092	0092	0092	0092	0092	0092
0093	0093	0093	0093	0093	0093
0094	0094	0094	0094	0094	0094
0095	0095	0095	0095	0095	0095
0096	0096	0096	0096	0096	0096
0097	0097	0097	0097	0097	0097
0098	0098	0098	0098	0098	0098
0099	0099	0099	0099	0099	0099
009A	009A	009A	009A	009A	009A
009B	009B	009B	009B	009B	009B
009C	009C	009C	009C	009C	009C
009D	009D	009D	009D	009D	009D
009E	009E	009E	009E	009E	009E
009F	009F	009F	009F	009F	009F
00A0	00A0	00A0	00A0	00A0	00A0
00A1	00A1	00A1	00A1	00A1	00A1
00A2	00A2	00A2	00A2	00A2	00A2
00A3	00A3	00A3	00A3	00A3	00A3
00A4	00A4	00A4	00A4	00A4	00A4
00A5	00A5	00A5	00A5	00A5	00A5
00A6	00A6	00A6	00		

Machine Code



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The Worm completes a Silicon Dream

By Brillig

As promised last month here's a test for Level 9 fans, as I shall be reviewing in varying degrees all during the *Silicon Dreams* trilogy, now completed with the long awaited arrival of *The Worm in Paradise*.

The series marks the culmination of Level 9's evolution since the arrival of *Snowball* with the sum of 1000 locations.

Snowball was much in the style of previous Level 9 games in that it was text only, had verb-based input and made great play of the huge numbers of locations. Of the trilogy however it is my personal least favourite for that very reason.

The obsession the biggest selling was precision at first time and indeed to some extent still is having only been overtaken by the obsession with graphics.

That Level 9 has always been the largest adventure writer is then something to be proud of inasmuch as a huge number of locations.

In my view there is little point in having that many locations when about 800 are all the same. Accepting this, however, means that the player can assume the identity of Kim Kimberley and begin to tackle the problems of the giant frozen wife *Snowball*.

You start the adventure having been supernaturally sustained by the ship.

You are in kind of unceasing trouble because of the very fact of your increasing indicates problems in fact there is a telecorder aboard and you have to sort him out to save the 1 000 (800) (minus you) frozen bodies

en route to the planet Eridani A to start a new life.

The adventure is set in the 23rd century and is based very loosely on the Larry Niven novel 'The Man in God's Eye'. With the exception of the beginning of the program it is a highly favourable impression of how such an enterprise might be conducted.

If the rather tedious start to the game which made it difficult to get into. For instance it seemed logical to me that as the 'sleaper' placed aboard in the event of trouble the ship's safety systems should activate 'nightmares' to distract you to a maximum; more particularly sleep on discovering you are awake!

Once out of the initial stages the game seems well structured and has a sense of purpose - much better than some games with just lots to bosh or a few puzzles to fidget.

The plot and implementation mean that 1000 locations are a bit depressive and the spelling is not all it could be. Although these are useful for most objects not all are essential and once the initial code breaking is done the game is a trifle too straight line in logic for my liking.

If as I fear you have been stuck at the beginning for some time, a few hints may be in order. After you have pushed the lever and said Ctrl to leave the coffee you should go north and push three buttons in turn.

Go back south, go up to the coffee from where you can go up to the laundry. Remember always to keep a closed door between you and the nightmares and keep still when they are around.

Nightmares will only enter blue

Snowball



Level 9 Computing

Return to Eden



Level 9 Computing

The Worm in Paradise



Level 9 Computing



mortuaries on the white level for some reason which Kim Kardashian ought to know!

Final hint if you want to get out of the mortuary area you should look at left.

In Return to Eden we discover that not only are the inhabitants of Brownell an ungrateful lot in that they have been framed for the murder of the crewmen and sentenced to death but that the planet Eden on which your colleague has landed has most definitely gone to seed.

This game started Level 9 in fast departure into graphics on several machines, although Atari owners were given the doubtful privilege until Red Moon.

Again the idea is taken in part from a film but this time Harry Hannon's Deathworld. Your task is to clear your name with the occupants of the city of Enoch both physical and mechanical utilising the Fax and tools.

This gives rise to some devious problems and to some quite dreadful

yet enjoyable ones. The only slight problem I had with the game was again one of logic at the start.

I enjoyed a little odd that rather than use the conventional way of killing people the area of Sheepish offers from the James Bond villain syndrome.

This entails using the most convoluted and complicated method imaginable of causing the hero's death. Hence rather than shoot him/her they try to burn you with the engines as they fly past! A little implausible I would say.

The engines incidentally can be avoided by burrowing underground.

Other than this fairly minor gripe Return to Eden rates as the best of the three games in my opinion and can be played without having endured Dinkball since a manual is included in the instructions.

All that has left me rather short of space for Worm in Paradise. The new Level 8 adventure system is a mixture of intriguing, with the type-ahead an absolute boon. Again I find the

graphics a little too Spectrum-like and rapidly turned them off.

In Worm you play a citizen in the next century and aspire to the Seat of Power. It's not sure if the game is a true reflection of Paul Austin's political生涯 – a title to the right of Gaenghis Khan – but the game has a political slant.

Definitely I shall return to this game fairly soon when I have made a little more progress but so far Return to Eden is the best of the three for me.

• • •

Final note. A couple of licensing deals have been brought to my attention. Adventure International has signed up with US Gold so we may see Discoplate II in their and Bigtree Software has signed up with S.E.C.S. (yes that's how I pronounced it too). They'll be previewing all four new adventure at the Atari User Show.

• Final remark I shall apply at Alpine Mole from Micros/Level 9 and hopefully have received a gift of two

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Move over Atariwriter... here comes Superscript

— says André Willery

WORD processing is probably the first serious application that every home computer will be put to take most other chores, there is a glut of word processing packages for the Atari, some more versatile than others, some easier to use, some faster, and so on.

The standard word processor has for some time been Atari's own Atariwriter cartridge which is very easy to use and reasonably reliable. It was designed to run with 16k machines and worked pretty well within those limitations.

Now that the 4000, and 13000, with 84k and 128k respectively are available it was only a matter of time before a new program would be written which would use these new facilities to the full. Such a package is Superscript, written by Precision Software and marketed by MicroPro the makers of Wordstar.

Let's get the bad news out of the way first. Since Superscript requires a minimum of 84k, and preferably 128k, you can't use it if you have an old Atari 400 or 800. It would not have been possible to pack all of the features into a 40k machine and still have any space left to store your documents.

The other piece of bad news is that it only comes on disc, but come firmly I feel that anyone who is seriously considering word processing must realise that a disc drive is an essential item anyway.

Even though discs are pretty reliable I feel that MicroPro has let the users down badly when it comes to back up. When paying this much for a program you would expect that a back up to be provided at nominal cost or as you are told in the licence agreement that you should always make a back up before using the product.

Even though you are warned to

make free back-up copies to be completely safe the program does a quite heavy copy protection leaving you somewhat in the lurch if your disc is damaged. Come on MicroPro! Is fair to the customers who pay your wages!

I'll leave no details to every feature that Superscript has to offer since I'm afraid I've enough space in the magazine to print it.

The fully ring-bound manual provided is over 240 pages long and I couldn't hope even to paraphrase it here.

It is split into sections starting with a couple of tutorials on major aspects of the package, then going into advanced use and finally a very comprehensive reference section — some 100 pages in itself.

Unfortunately despite all of MicroPro's promises, there is no quick reference card, a serious omission in a package of this nature.

Once you've booted up your master disc — which partly due to the copy-protection stuff seems to take forever — you may create your first write file. This will be formatted in DOS 2.5 mode, up to the extent of using enhanced density if possible and will contain your documents and your printer driver file.

This file can be set up from the 11 types provided, including all of the Apple, Amiga, Epson, Diablo NEC and so on, or customised in any way you wish for your own printer. Unusually

It will support the full international character set, dozens of print modes, spacings and character sizes.

you can even use an EC232 printer assuming that your printer handles them. Superscript will support the full international character set, dozens of print modes, spacings, character sizes and so on and any special features such as italics or download sets that your printer can offer.

By far the most popular non-Atari printers to use are the Epson range and I use an Epson compatible RICO printer with which I found that all of the international characters print exactly as seen on the screen — which means that I can at least write French rather than Andre!

The same goes for that elusive 8 sign. Most printer-drivers, one of course, to boot, do a feature which would allow you to teach a sign and a partial parity at the same time — perhaps a diacritical and a dot matrix — and switch between them with ease.

Once on to the main screen the colours of which you can choose are the default file, just as you can margins, spacing and justification you can start typing.

Against most word processors you just type in your text with no thought of line format, and the only time you need to hit the Return key is to signify the end of a paragraph.

Words will be moved down automatically to the next line if there isn't room for them as the current one.

I found that sometimes the time taken to insert new text within a long document was rather greater than I'd have liked, with three or four or five second pauses while it freed up some free space.

This could become a little annoying at times — like now, when I am holding an entry for half way through a

Answers

When I send long documents to the printer I print just three. On a 1200 dpi there are two separate text buffers each 750 lines long (about 84k in total). This means there are just over 300 screen lines or about 200 lines for the user as printed out on an 80 column printer.

I managed to fit four lines before I ran out of memory - that's about 1000 printed lines. On an 800 dpi you get about half that and when you get a massive 200 to 250 printed lines or about 16k.

Working within the limitations of 40 columns of text is normally somewhat tricky when you think that the printout will be reformatted to use 80 columns.

The reason that typing a table requiring say 70 columns of text is almost impossible. Thankfully an option has been added to set the line length to any line up to 240 characters. You simply scroll a 40 column window over the text and any tables can then each laid out correctly.

This is especially useful when you realize that Superscript has a calculate function built in giving it many of the basic functions of a spreadsheet.

All you need to do is key the numbers for your table out in rows and columns and Superscript will total them for you, using both negative numbers and bracketed numbers as subtractions.

It will also allow you to handle

6 An easy way out of a frustrating menu-selection procedure. 9

multiplication division and percentages before you even enter the figures on to the page as a menu calculator feature if at this stage it's too complicated to grasp, which perhaps it is until you get used to it, there are examples on the disc and exercises in the manual to help you out.

Every time you want to use a feature such as the calculator facility you press the Select button to bring up the main menu from which you

can other menus are required.

There are 11 options, each of which leads to a sub-menu and a help function. This can also be obtained at any time by hitting the Help key.

Selecting of items from the menu is possible in two ways. The easier

7 The beginner may find some features hidden under the most unexpected menu titles. 9

can highlight each feature with the cursor keys and hit Return when they've made their choice. This procedure can become tiresome very quickly so you can just quickly type the first letter of the option. For example instead of moving the cursor to Document (Return) then to Load (Return) all you need type SL.

At first you need to look at each new menu to see what you expect see but after a few days you find yourself using only the abbreviations.

My only criticism is that a beginner who is bound to start by reading the menus may find some features hidden under the most unexpected menu titles. For instance, would you really expect a heading of SL to give you a sub-menu including all of the quite comprehensive search and replace options?

Once you're used to it though such obscure operations as setting a new margin - Select menu then Margin then Margin and finally Left - become as easy as Select LM.

If after all this you still find that some command sequences take longer than you'd like then you can always define Macro's which allow you to execute whole series of command and read entries such as single keystrokes.

You may wish to put your full name in bold face on the key M for obvious. The possibilities are endless.

Another important feature of Superscript is a very powerful mailmerge. This is the ability to use a standard form and make the computer print multiple copies with different names and addresses on

each and perhaps personalized with Date soon.

You may use either a file you've written yourself as Superscript, or merge with a database, such as Superbase or FileManager 800 or any other program that creates tab-delimited output files with one field per line.

You may use any or all of the fields at any position within the text, and even use fields more than once.

Fields can be variable or fixed length - 90 bit address lines variables - and even conditional which allows names and addresses to be joined with variable numbers of lines. You can even specify to skip certain records.

One slight problem in this area is the need to leave the slot of your merge file to fit within your RAM or go into two files with the LMAX option.

This would preclude the easy use of very long - over a couple of hundred records - database merges without first modifying the merge file which would involve you in extra work.

Spell-check of course, is not overlooked and you can configure your 300,000 word dictionary file to either British or American spelling. This is a godsend for anyone who has been driven up the wall by the computer politely informing you that you've spelt colour wrongly.

You can also add or delete dictionary words whenever you like.

Spell check can even give you statistics such as number of words, number of unique words, number of paragraphs, average word length and even a breakdown of how many times every word in your document has been used. There is no re-spell-checking, but that's really in the province of much larger systems.

All of the general block manipulations are present, which include Define block for column/field, Move, Duplicate, Save or Delete block, entire character, word, sentence, mailing-line, full-line, paragraph, rest of document or whole document. The last are others.

You can even have two documents in memory at the same time (if you've got 1280k) and freely move text between them both which is especially useful in mailmerge mode.

So far I have only listed the major features, but there is so much more

You can set headers and footers to print at the top and bottom of each page (which can contain up to three parts: left-aligned, centred, and right-aligned).

Page numbers are catered for and Superscript will adjust its settings automatically for you to make odd and even numbered pages have larger central margins and adjusted header/footer margins ready for binding into book form.

Movement within a document can be either relative or absolute. You may go to the top/bottom of the last or move up/down a screen or to the left/right of a line, or forward/backwards by words, sentences or paragraphs.

Tab positions can be set 'left' aligned and down the page. You may use overline or insert mode for text entry with hard or soft hyphens and spaces, and use the repeat cursor keys (both or without using the Control key - the choice is yours).

These are keys to change while

Every silver lining has a cloud, and Superscript is no exception. 9

words to upper/lower case, change the screen colours, add margin/pagination comments (useful), and use multiple levels of indent for sub-headings.

Unfortunately every silver lining has a cloud and Superscript is no exception.

I was hoping that this paragraph would not be necessary because by now I received an early beta-test copy of the program, and was invited to comment on any faults that I found.

But I duly did implementing a couple of very easy-to-fix problems, but ones which were very annoying in general use.

Thus Precision Software had a full three months to fix them before the final release came out - right? Wrong! It seems I was reading my time replacing to them how an Apple works and that there are a number of bug problems.

Firstly and most frustrating of all the Delete key's function is slightly different to the internal Apple one. When any Apple user hits Control+Delete he would expect the character

under the cursor to be deleted, but in Superscript, for reasons known only unto themselves, it deletes the character to the left.

As an additional function this would be fine, but when you're so used to the normal operation of your computer it really can be quite annoying.

This problem can also cause text to break-up into the previous paragraph - even to the extent of packing two short paragraphs on to one line or leaving multiple spaces within a document.

The 'soft-return' option will not correct this so unless you happen to notice it something after the first end-of-paragraph marker will not be printed.

The really odd thing is that the manual doesn't even mention Control+Delete, and only talks about Shift+Delete which apparently does exactly the same thing! So why change it in the first place? Your guess is probably as good as mine!

Of course if you do finally get used to it, heaven help you if you then want to do some ordinary programming afterwards.

The other main problem I learned about is extremely silly but has several nasty repercussions. Thankfully a slightly knowledgeable Apple owner could spot and correct it quite quickly, but that's not really the point is it?

The problem lies between certain characters to tell the printer to do a Carriage Return for EOL, as it is sometimes known. Precision apparently put this in because the Apple range of printers is based on using the Asian internal code of 13 whereas most printers use code 10.

However what they totally forgot is that any use of code 13 is translated automatically into a code 10 by the Commodore or RS-232 interface anyway.

Thus code 13 should never be used in an EOL because the operating system will know that the line has been finished and will then add its own EOL just to make sure.

Thus at the end of a paragraph it adds an extra Carriage Return (of the correct 10 type) when the last line is printed. The next page you print will then be one line lower, and so on.

On either a multiple-copy printout

or even a single envelope each page is printed one line lower down than the last, until about 20 letters later it starts printing over half-way down the page.

Also the 'Store printout' function won't work at all which is really frustrating if you want to use Superscript to prepare formatted files for use with another package, such as uploading via a Compu-package, use with a database or in with your own programs.

If you come across anything like this and you're not one of the few people using an Apple model, try changing the 13 to a 10 in your printer-driver file.

Perhaps one of the six or seven

In terms of value for money it really cannot be beaten. 9

people I spoke to at Precision and MicroPro will actually take note of these points before the next version of the product is released.

Anyway regardless of these few problems I found Superscript to be a generally excellent product, giving more features than any other word processor I've come across for the Amiga.

Unfortunately due to the added support being provided by MicroPro they have seen fit to raise the price to £79.95 which will put it out of the price range of some prospective users, although in terms of value for money it really can't be beaten.

Whilst it may seem to be twice the price of Amphetamine, by the time you've added the cost of a printer-driver and a good spell-check program there's not nearly anything else.

If all you want to do is type the odd letter then Amphetamine is probably more up your street, but I can wholeheartedly recommend Superscript to anyone who is thinking of using their Amiga for any sort of serious word processing, and certainly to anyone who is a little fed up with the limitations of Amphetamine.

Anyway assuming the Delete bug is soon sorted I know which word processor I'll be using in future.

HORSE PLAY



By
MALCOLM
IREDALE

Knight's Tour is a classic problem involving a chess board and a knight's move. It involves moving the knight on its normal L-shape in such a way that each square on the chess board is visited once only. To successfully complete the tour you must visit every square on the board.

In this version you use the keyboard to move a cross-shaped cursor. When you're on the desired square press the **Space** bar. The knight will move to that square and the previous square occupied will be blotted.

The program won't let you make an illegal move or visit the same square twice. It will also check to see if you've stuck. You can leave the program at any time by pressing any key on the keyboard.

I wrote the program using a monitor instead of a TV, so the colours used may not be to your liking. If this is the case, you can make changes thereby altering the values in line 330.

The Knight's Tour is possible but by no means easy. When you've mastered it from the normal starting point, see if you can still do it from a random starting point.

MAJOR VARIABLES

LTORANGE	Colour variables like be changed?
GRADE	
PLACE	
WHITE	
X	Position of knight
Y	Position of chess horse
YR	Colour lighter square position
C	
R	Pos/Draw coordinates
S	
H	
N	
M	
COUNT	Variable for number of solutions found
MENU	Position menu button - Standard/Monochrome
S1	Value of joystick
S2	Value of light sensor
BT	Value of the button

PROGRAM STRUCTURE

140	Print instructions
150	Print menu
160	Test for movement
165-240	Draw screen
250-260	Main menu screen position
270-450	Computerised knight
460-610	Draw graphics
620	Draw instructions
630	Draw menu
640	Move knight
650-760	Check knight
770-920	End routine
930-1180	End in monitor screen
1190-1270	Print instructions and menu
1280-1480	Print menu
1500-2080	Print instructions
2100-2160	Restart program
2180-2460	Draw big knight
2470-2520	Print "Press F1"
2530-2580	Print "Wait here"
2590-2640	Draw small knight
2650-2700	Print menu/Gravity



Tired of
working?

[View all categories](#)

AN awful lot of the letters I get regarding the more technical aspects of the Atari could be answered by one book — *Mapping the Atari* from Computer Books.

It is a complete guide to the memory locations used inside the Atari. Everything is there — operating system control bytes, various graphical facilities, graphics, sound, input/output, even BASIC pointers and variables are covered.

But the book is much more than just a list. Many of the more complex functions have quite lengthy explanatory notes, and there are lots of programs to show you how to use them.

Some locations have as many as three or four pages given over to them, and while such a book can never be a complete tutorial to the workings of a computer, it's Atari oriented as you could possibly get.

Even better, there is now a revised edition which also covers all of the locations changed for the XL and XE configurations (version 1.20SXL).

These are listed in the form of a very large appendix so you can see at a glance which locations refer to which type of computer — and everything is listed in both hex and decimal.

Other appendices cover vertical

Answers to those Atari queries

blank functions, system memory display lists, and play/pause/graphics connection ports (including the parallel port) and even the workings of DOS 2.0.

There is also an alphabetical index to all of the locations covered, so you can quickly find out what the location mentioned in a particular program or article actually does.

Last, but by no means least, the book finishes with a couple of very useful programs for X10/E owners. One will convert your buggy Revision 1 basic from ROM/XL/XE into the improved Revision C (as provided with the XE), and the others allow you to transfer the cartridge system from ROM into RAM so that you can try your hand at modifying things for yourself.

I really cannot recommend this



book highly, so if you feel tempted to write to us at *Amiga*, 'What does location xx do?' or 'How do I use POKE yy?' then you may find that a copy of the X10/E edition of *Mapping the Atari* will answer all your questions (and more).

My own copy is never far from reach, and is almost certainly my most-used reference work.

While it may seem a little expensive to some of you at £19.95, I think you'll find it's worth every penny. Get out and get one today and start finding out a little bit more about what's going on right under your nose.

DIY WORD PROCESSOR

If you don't know whether to review *Spacelord* also from Computer Books as a book or a piece of software, as it really is both and neither. What you get for your £13.95 is a 114-page book which boils down to the complete listing of a quite reasonable word processor written completely in machine code.

Two sorts of people will find this book useful — the ones who just want a good cheap word processor and don't mind a bit of fiddling — and those who have probably got a word-processor already but are fascinated to know how they work.

The book works on both Amiga as it contains an easy-to-type form of the program (in Basic) with extensive checksum error checking; plus the complete and well-commented

assembly listing

The word processor itself is surprisingly powerful giving you a whole range of simple text editing commands. You can set all the usual things such as margins, header/footer, writing and justification, page numbers, underline and special printer features, sample macro keys and more.

You also have search/replace plus full text movement commands and move/delete by letter, word, sentence or paragraph. The whole thing works in a very attractive re-defined character set using Amiga Mode 3 for greater clarity.

An interesting idea then hampered by the amount of typing involved (about 30 pages of mainly numbers) but of great use to the



machine code programmer who wants to pick up some tips.

If you just want a no-fuss word processor you may prefer to look out a little bit more straightforward that doesn't require quite so much work.

André Willey

NEWSLETTER

WORD WINGS DOWN FROM WICK

CALIFORNIA Close the company that made the MicroLink small personal computer system and many other famous computers have disappeared from production. It is MicroLink Ltd, a public project which was practically tied to a network linking it with an UK sales page agency and computer news sites.

Farther all over the world for no collectors, paperweights and plates and other products, the firm has a greater need than ever, fast reliable, high speed communication.

Based in Wick just above the beach so you can get in touch with Scotland, the company has factories in Fife and Orkney, an sales office at Braehead of Taunton and representatives and retail outlets all over the UK.

Considering the disappearance of the general interest it would be vital for us to try to have your own newsletter on a closed MicroLink network to facilitate anything financial managing and stock control and anything else to help manage MicroLink.

It might even be possible to open up a service for microphones among the 11000 people around the world who are registered collectors of computer equipment so they can get in line for the latest news about new products.

**YOUR chance
to join
MicroLink
- Page 67**

WHILE a customer takes advantage they will need both their personal computer machine and a unique password.

This is usually a six letter word — six is the minimum number of letters the system will accept — and can consist of, of course, four or more digits the password is often six or seven.

Human nature being what it is, do universities often leave or forget their passwords?

For system manager Colin Ropponen, "You very often see that information is well established. But as the people there are assigned are much

more a week."

"However the problem is mainly overcome after taking the most stringent steps to establish the university's own discipline we refer them to the original password they were allocated, which is based on personalisation like an individual's birth date, and relating to the date number."

What a nice policy applies that that individuals should always be invited to keep a record of whatever password they are using at other institutions — although not in its obvious a place — just in case they suffer a loss of memory."

The password is ...

Log on to the Flying Pig

LONDON subscriber Adrian Moore is using MicroLink to operate what he claims is the world's cheapest, completely independent, public-domain computer consultancy service yet!

He's even calling his organisation Flying the Basics as an expression that for believe just about anything is possible with the help of MicroLink.

Flying Pig will help both home and business individuals choose their hardware, software and software and also solve technical problems.

For £2.99 clients receive via MicroLink or tape or email services of a comprehensive Computerise Basics to their specific area of interest.

The computer form will be assessed by Flying the Basics' computer guru who says Moore will probably offer "an unbiased reply that could well save lots of money". The client is also entitled to 12 months cover fully over the phone.

Hold that train ...

UK from the Standing of Parishes, it can be said, the majority of MicroLink customers are public sector and just making improvements and just over 1000 of customers from private or other sectors.

If they hold a Post Office telephone kiosk or Post Office retail outlet then you will find that tickets and staff answer questions, and MicroLink's new telephone service.

There can be criticism as an result of 12 — or 12 full-time workers — and the change for simpler management makes it 873 a month.

MicroLink can help only services should therefore be given up completely, continued service. But, I am afraid regular with firms, however London and the major cities throughout England, Scotland and Wales.

LINK OVERCOMES HANDICAPS

ITALY ITALIAPIU has been chosen as the electronic medium for an innovative scheme to introduce disabled people in the world of Microcomputing.

Over the next few months the Centro Robotica Civic in Dublin will oversee a pilot project involving both a dozen or so people on a small programme but who have physical handicaps ranging from slight visual impairment to the inability to move or speak normally.

The project is designed to prove to them as well as to most MicroLink's members that today it will also perform speech synthesis and speech recognition technology in helping the disabled to communicate with the outside world.

Microcomputers, resource managers like Alan said, "We hope that their increased ability to communicate will lead to better lives. I want participants from a job but at least as well give them a helping hand at the marketplace."

Increasingly the disabled people involved in the project have feedback of the progress of telecomputing from home.

All live in the traditional view that the world must accommodate for them and others, but they tend to a much more active, more social dimension from their base and tend to isolate them.

So we have configurations and wall arrangements for them to stand over so where there is a basic absence combined with the working environment."

NEW SERIES

BASIC COMPILER

Speed up your programs – even on a 16k Atari – with this Basic Compiler by FRANK O'DWYER

HAVE you ever wished your Atari was faster? Perhaps you have written a program which restyles the character set or a vertical move routine for player missile graphics. Programs like these really show up the Atari's lack of speed when written in BASIC.

An obvious solution is to write the routines in machine language using Atari BASIC's USR function facility. One way to do this is to use an assembler program such as Atari's Assembler Editor cartridge.

This program performs a lot of the tedium normally associated with machine language programming, but it requires that the programmer not only be thoroughly familiar with the 6502 CPU at the heart of every Atari but also with the machine itself and with its operating system.

This is especially true when colour graphics and sound are concerned.

An alternative solution is to use a program called a compiler which is capable of taking a program written in BASIC – or Pascal C or whatever you – and directly producing either machine language or assembly language.

In the latter case the assembly language is assembled using an assembler program as discussed above to produce executable machine code. The trouble with compilers is that they tend to be expensive and they usually require a disk drive and more than 16k of memory. They costing 400 and 600KL respectively in the cold.

The program presented in this series is an exception to all the above. It is a compiler written in BASIC which compiles a language similar to Atari BASIC into assembly language which can then be assembled to produce a ready-to-go USR function using the Atari Assembler editor cartridge or an equivalent assembler.

All of this can be accomplished using just a 16k Atari with cassette drive. If you have more memory or a disk drive your life will be made easier, but it is by no means essential.

Before you get too excited I should point out that this is not a professional software development system – you can't produce large programs with it.

It is primarily intended for fast

and dirty" routines which can be captured in about a screen's worth of BASIC. Also the limitations of producing the compiler in 16k force me to admit that many Atari BASIC features are not supported.

Reading point strings and arrays for example may not be used – these are the main restrictions.

You also lose the comprehensive error checking offered by the Atari – there are five error checks when compiling and fewer still when running your USR function.

This limitation is easily overcome by testing your routine thoroughly using Atari BASIC and only then when you are certain that it is correct, compiling it to get the benefit of machine code speed.

Initially you will find that many things cannot be done using the compiler. But you will also find things that cannot be done without the compiler.

Take sound, for example. The compiler provides an exact replica of the Atari SOUND statement, but without range checking on the four sound parameters. Remembering that compiled programs execute many times faster than normal BASIC it's possible to get new sounds from the Atari by varying the sound parameters much more quickly than is normally possible.

Other benefits of the compiler are advanced control structures such as named procedures and REPEAT UNTIL and keywords to deal with timed interrupt. These are extremely powerful and open the door to concurrent programming – that is two programs appearing to run at the same time.

Over the coming months I shall be presenting the compiler itself and also discussing the BASIC which it compiles – its special features and limitations. I shall also be giving example programs which demonstrate the compiler's usefulness.

For now type in Program 1 – listing starts on Page 30 – and save it several times on a cassette or disk by itself. This is the compiler program.

To use it you will need the compiler library, a set of assembly language routines which the essential USR function will require.

I shall present the source code and also explain how to use the compiler

MIDI SYNTHESISER INTERFACE

For the Amstrad 400/800/XL/XE Computers



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EPHONES

More MIDI software is currently under development. CASIO CZ Digital Synthesizers (as used in some of the latest pop recordings) are now available from DigiComm.

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ATARI ENTHUSIASTS

TAKE A LOOK!!

Description	Price	Notes
Ultimate	£28.95	a hardware mod
SD Coloursoft	£19.95	a hardware mod
Speaker	£22.95	a hardware mod
ADS Translator	£29.95	a hardware mod
The Biggy	£29.95	a hardware mod
Over White	£7.95	a software mod
Bad Sector	£19.95	a disk drive mod
Parasite	£29.95	exists & after an exec
File Loader	£9.95	an exec
* Boot Loader	£14.95	an exec
* Disk Backup	£9.95	an exec
* XD Disk Backup	£19.95	an exec
Beethoven	£7.95	an exec, no music
Utility Pack One	£9.95	an exec
Utility Pack Two	£9.95	an exec
* Cartridge Backup	£19.95	an exec, no exec
* Cassette Backup	£9.95	an exec, no exec
Serial I/O Plug	£2.95	hardware

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SUNARO software

SOFTWARE	DISK	FORMAT	DISK	FORMAT
STAR	128	FORMAT 1	STAR	FORMAT
SPY vs SPY II	128			
CREDITS	128		128	
MONITOR SET	128		128	
GRAPHIC ARTS SPY	128		128	
PICTURE	128	PICTURE 1	PICTURE	PICTURE 1
PICTURE 2	128	PICTURE 2	PICTURE	PICTURE 2
PICTURE 3	128	PICTURE 3	PICTURE	PICTURE 3
PICTURE 4	128	PICTURE 4	PICTURE	PICTURE 4
PICTURE 5	128	PICTURE 5	PICTURE	PICTURE 5
PICTURE 6	128	PICTURE 6	PICTURE	PICTURE 6
PICTURE 7	128	PICTURE 7	PICTURE	PICTURE 7
PICTURE 8	128	PICTURE 8	PICTURE	PICTURE 8
PICTURE 9	128	PICTURE 9	PICTURE	PICTURE 9
PICTURE 10	128	PICTURE 10	PICTURE	PICTURE 10
PICTURE 11	128	PICTURE 11	PICTURE	PICTURE 11
PICTURE 12	128	PICTURE 12	PICTURE	PICTURE 12
PICTURE 13	128	PICTURE 13	PICTURE	PICTURE 13
PICTURE 14	128	PICTURE 14	PICTURE	PICTURE 14
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PICTURE 37	128	PICTURE 37	PICTURE	PICTURE 37
PICTURE 38	128	PICTURE 38	PICTURE	PICTURE 38
PICTURE 39	128	PICTURE 39	PICTURE	PICTURE 39
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<i>Get it right!</i>



one of the best known in their field and one of the most distinguished.
one of such "other" men whom you like to call "strangers" are
the two **REEDS**
one of "other" "other" men who
was of course not a "stranger" but
is better the result of the "other"
category.
The other kind of "other" men whom we
have selected are not
the two **REEDS**
one of "other" "other" men who is
one of the best known in their field and
one of the most distinguished. They both have
the two **REEDS**
one of "other" "other" men who is
one of the best known in their field and
one of the most distinguished.



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offer on Page 10.

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From the Editor

WRAPTRAP

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EVER since we introduced our check-score program Get It Right! we've had requests to publish check-scores for the earlier games. It seems that many of you are still struggling to obtain copies of those.

We have try guides started, ate some check sums for several of the early games. It seems that some people haven't quite grasped what do with Gart in Right leather, so here is a simple step guide.

- Type the program into the computer
 - Save it to disk or tape using the QUIT command like this

Disk users LIST-TEST¹
Tape users LIST-SU¹

- Delete the program from memory by pressing **ESC**

ANSWER

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— 8 —

RAIDER 1997

THE JOURNAL OF CLIMATE

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- 3 -

It 'em all right

- Where a number on the screen differs from a number in the magazine, this indicates a difference between what you typed and what was printed. In the case of a REM line such a difference probably won't be important. In the case of a DATA statement a difference could be fatal. A full stop instead of a comma might cause the whole program to crash.
 - Use the Return To Basic option in Get Right! and type HKEY. Then re-load the program as follows:

However, I'll still want to see you!!
Please come back to see them.

The also worth pointing out that although the maps might say something like DPH.DPH.BIN.LIVE.20 this doesn't necessarily mean that there is a mistake in the 20 heart. This is just the file that was being executed when the error condition arose.

Typically the line referred to in the error message contains a `DATA` statement. In these cases the typing error has probably been made somewhere in the `DATA` that is being used for the mentioned line.

Finally if you're new to *Get It Right!* and have missed it from the December issue make sure you see the correction which we published in the January issue. "Team re-hires—*it's time to participate*" is really quite clever too!



BEST FATHERS

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P037003

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10 of 10

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But there is still much to be done to bring about a better life for all our people.

What would be the point of my messages now with
you? We were just living here, and there was no reason
for you to come here. The reason you came here is because you did have
a reason to come here.

K.F.C.M.

1. **NAME:** *John Doe, 123 Main Street, Anytown, USA*
2. **PHONE NUMBER:** *(555) 123-4567*

MICRO-EXPRESS

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STRATEGIES

**BRONWELL: IN SPITE OF OBSTACLES, GAMES FOR THE
DISADVANTAGED ARE POSSIBLE.**

**STRATEGY, ADVENTURE AND SPORTS GAMES FOR THE ATARI 2600
HOME AND ATARI 8-BIT COMPUTERS.**

Another one has 20 pages of VHS recordings, which have a large selection of film clips from various countries all over the world.

www.ijerph.org dx.doi.org/10.3390/ijerph10093800

ANSWER: **Reason:** The R value given gives the number of 0.01 mm.

Goonies saved by the ploy

DON'T having seen the movie of the same name I don't know whether or not The Goonies have any resemblance to it or whether knowledge of the film might give you any more enjoyment or easier to solve.

I may advise for what we have here is yet another of those running-jumping-combating platform and dodgers which you will find where the basic idea is to guide your way through several different screens.

Not again I hear you cry. Freed up, but at least The Goonies has one novel entertainment feature which prevents it from being written off as just another in what has now become a long line of played-out game releases.

In order to add each bonus you need to get the two or three characters (Goonies) to work as a team. Once you are chosen by the

way.

Only one Goonie can be operated at a time - you simply switch control to the other by pressing the joystick key button.

Unfortunately this unusual and interesting game play concept is often wasted here because the other elements in the game - certainly graphics, animation, colour and sound - are nothing to get excited about.

The Goonies' goal is to reach One-Eyed Willy's penthouse and grab the treasure. To do this the Goonies have to progress through eight screens of underground obstacles in each of which you will have to be crept and the exit found before they can progress to the next chapter.

Each screen has to be separately tackled in four directions or die when you reach it and you can only ever



start at the first screen.

Once you've beat all of your Goonies' trials there is a final part if you're having a cassette deck since this also means revisiting the levels to the correct position.

Various hazards along the way for the Goonies include members of the dreaded Fizzgig gang, lava pits, nodding alien bats, electrified batiles, flying skulls, alien and a giant antelope. The Goonies' ways around by running and climbing, climbing and bouldering, the latter being impossible

Although the teamwork concept is a good one the game is quite let down by rather plastic and unconvincing graphics, while the use of sound and colour is both limited and unexciting.

Indeed it is this short while running alongside should help in solving most of the puzzles.

The game is worth playing if only to try out the two character feature, but don't expect anything earth-shaking from it or you'll be disappointed.

Brian Chappell

Forget the cover, enjoy the story

DON'T judge a book by its cover. That is the case with Zone X from Gemini. The plot and one of their first Atari products.

I was a little apprehensive about the quality of the game but I soon changed my mind when it had loaded.

The object is to collect plutonium that has been left scattered around in a mine shaft. Why oh why NCA never used?

Well according to the map and recorded frequencies no such plutonium. But all the government storage tanks are full so plutonium must have been used to power nuclear weapons.

One of the shafts had been infiltrated by terrorist subversives who attempted to steal the plutonium. The whole operation went wrong and plutonium was scattered all over the mine.

The player's job is to collect

all the plutonium and dispose of it via transports.

Easy? No way. There are several guards which will distract in every ecological dimension and least done open and close when they want making your job more difficult.

When you find a place of plutonium you have to pick it up and then take it to a certain place. Throw the stuff in radiation. The longer you hold it the weaker your resistance will become.

You can reinforce the cult's resistance by picking up some items which lie around the mine.

If you wish to go through a given zone you will need a key. Keys are always and can be collected with relative ease.

Another helpful object is a mat which can be used to knock off robots. Be careful when using these because if

you place the mat in the wrong area of your train you will end up stuck in a corner with a bunch of robots, staple and more than able to kill you.

Once you have safely disposed of all the plutonium you must leave via the pit doors which you must then locate.

Bonus points are gained by picking up quantities marks and every forty five are that are in involved positions - they aren't worth the bonus.

Most players find that Zone 1 is hard enough to start with. It will teach you how to avoid robots and time all your moves.

Each zone is different and once the seven zones in all dimensions they take a long time to master.

The game allows selection of zones 1, 4, 7 and 10. Each has a difficulty level 1, 2 or 3. This gives a possible 30

ways.

Other variables which determine what you will do include doors which close behind you and never open again and air locks which may reveal rooms enclosed in an adjacent room.

There are many doors, constantly closing and opening in the game, but I failed to find these.

When you are killed either by being run over by a robot or running out of time, your man will explode and he remains by off the screen.

The game has a high score table but I hardly ever scored enough to get on it.

In all a nice offering that should keep the best of gamers occupied for many nights. Zone X is available on 400k cassette or disk and retails at £19.95 and £12.95 respectively.

Richard Veness

FLUNNY have simple ideas and quirky turn into big money spinoffs. Take Monopoly for instance. Well, lots and loads more now and no one seems to notice it. Tetris has found its feet at least half a dozen spinoffs, almost as many titles.

Once upon a time you could buy a set of classic board games in a box. Nowadays those old campioncules of Ludo, Snakes and Ladders, Draughts, and Monopoly have been supplanted by a correspondingly more advanced phenomenon - the computer games equivalent.

The computer games of yesteryear's released games have proved to be very popular and it's hard to see why. A comparison of quality games offers surprisingly good value for money.

Chop Suey tops bargain collection

English Software, publishers of the amazing *Babylon* game (reviewed in a recent issue and in my book the best Aged 16+ game ever), are no slouches when it comes to giving the Amiga gamers playing public what they want.

They have just released a further volume in their *Death Hit series*: *Death Atta Volcanic*. Equipped, the experts Chop Suey, Scream, Cannon Heads and me I have not even begun to scratch.

Chop Suey is a top notch *King Arthur* game where your martial arts skills against a horde of computer-controlled opponents.

Impressively smooth and action and a variety of realistic moves result in a cracking game. Next to *Death Atta Volcanic*, this is English Software's best to date.

Kusan (Couch) has you racing and leaping through a succession of obstacle-strewn streets in a gallant attempt to reach a distant city-state. *Cannibal*, *Dragon*, *Boomer* and *Heads* are just a few of the hazards.

In *Milock*, you fight a doggerel and most vicious 1D wife from a moving train. To accomplish a mission you have to position the chopper over a VIP (who has thoughtfully

climbed on to the top of the moving train) and lower a rope for him to grab.

You then collect him onto the rear carriage where he will be secured. This and *Heads* add to the difficulty.

Present with you spending left to right along a four lane highway driving traffic - you can even cross over it - until you reach an office.

Finally you must the man for a safe all the while dodging and clearing obstacles before returning to the train and on to the next office. These short levels are all the same though but addictive.

Of the four *Death Hit* is easily the best and the *Death Atta* worth buying for that alone. But with these other cheap games there is far good measure you really can't go wrong.

Bob Chapman

The Zombies return to life

ELECTRONIC Arts has always been a good source of original and exciting software, but I was slightly disappointed at *Reign of Impurity*.

Originally released under the name *Reactive* the package has been both re-vamped and licensed to the UK by Amecsoft.

The game follows a good spiritual as well theme. The player starts in an Indian-Jesus type role fighting all forms of nasty buggers from invading savages to small round critters which look like cockroaches.

The action starts when an evil shaman called Wizarr sends the seven demons of the middle kingdom and yes you have to recover them.

The shaman is killed. He has hidden his demons among 13 dungeon strongholds - but by making one small mistake he only locked six of the dungeons. The other seven contain either keys that open the remaining locked dungeons or weapons for you to collect.

A menu allows dungeons to be locked/unlocked or destroyed. When you select a dungeon the screen changes



to a 3D view of the dungeon, giving a clear perspective sense of movement of the levels. Seven. You must move ready to explore the passages ahead.

You will probably have wondered why the game is titled *Reign of Impurity*? Well some of the dungeon floors with that would include may tell by.

In the Reign of Impurity damage (for example shown in a 3D graphic) that starts to be 100 metres high

straight for you. When a enemy collides with you your hit points decrease. If your hit points drop below zero the game ends.

The bad guys include various creatures including past spiders and eye orb. These inhabitants of the rod world play a defending role passing long like bows and arrows against intruders. There is not stupid, so be careful when being chased.

The problem with this game lies in the ease with which it accomplished all the dungeons. I finished the whole game in only one third go.

The game offers a two player game which is quite fun. Both sit on the sides at the same time so the side to dominate depends on the person who leaves a castle to find another for his partner to leave as well. If a player is killed the remaining player can resurrect his dead companion by touching him.

The price for this US Top 5 hit is £19.99 for the Amiga and £17.99 for the PC.

Richard Warner

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The machine equivalent of the telegram is the telemessage. Send it nation-wide and instantly is guaranteed by the post at the following day because of SpeedNet. The service was created for people placing their message in the operator public voice (15p for 10 words) they can now use 10p in MicroLink, for only 8.15p for up to 250 words. For an extra 5p your message can be deferred in an automatic greeting card.

Go teleshopping on your micro

With MicroLink you can turn your micro into a sales machine, and run and control sales manager of any length. You will be able to communicate directly to 90,000 sites elsewhere in the UK, 11 million households - and even with ships at sea via the satellite service. Business people can now send and receive faxes after office hours, home hours or when travelling.

Send and receive telex messages

With MicroLink you can turn your micro into a sales machine, and run and control sales manager of any length. You will be able to communicate directly to 90,000 sites elsewhere in the UK, 11 million households - and even with ships at sea via the satellite service. Business people can now send and receive faxes after office hours, home hours or when travelling.

What does it all cost?

Considering all the services you have access to, MicroLink is remarkably inexpensive. You pay a mere 10p registration fee of 10s and then a standing charge of just 15p a month. Call for rates on 0181 858 0000. Business rates and Board on 11p a minute during office hours. There is an additional 10p a minute PABX charge if you are calling from outside the UK. London call rates, charges for sales, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee £5.

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Connect charge 30p per minute or peak -
off-peak rate 11p per minute or part - standard rate.

Applicable for duration of connection to the MicroLink telephone system.

Other rates available: Direct Dial, Standing or Peak, off the handset and handset and public telephones, standard rate or local rate, Open, Muting or Private, including public telephone.

Print charge 30p per unit of 2000 characters per record.

Applicable for storage of information, such as sales, advertising and test files. The number of records used is an average calculated by reference to a 20 day sample.

Information Database, MicroLink charges. Any charges payable are dependent upon the value of the information supplied.

MicroLink 2000 service £1 per minute or part 12000 hours £1 per minute or peak £1000/75 hours.

Long distance calls made via the UK London offices.

Telnet registration fee £5.

Configuring system 50p per 100 characters (£0.50 per 1000 characters) 15p per 100 characters (£0.15 per 1000 characters) 10p per 100 characters (£0.10 per 1000 characters).

Configured messages sent via the night service can cost £1 to £4 per character delivered.

Incoming calls, 50p for each correctly addressed call received by your method. Obtaining a machine reference from the sender incurs a further charge of 50p.

If it is not possible to receive a machine reference the sender will be asked to nominate and advise to provide a machine reference.

Each user connection for calls involving the public off-hour charge of 10p charge adds a tenth. Further charge charges could be incurred depending on the content of calls charged and the use made of short code and message file facilities.

Telephone messages £1.20 for up to 300 words. Telephone calls for the next unit of 1000 words payable for 10p per word.

Modem charges £1 charge if you have a BT Modem; you can be passed automatically through a telephone in writing if your provider.

International Mail: For the first 2000 characters 20p to Germany and Denmark, 20p to USA, Australia, Canada, Singapore, Hong Kong and Israel. Per additional 1000 characters 10p.

These charges apply to the transmission of information by the fastest service to other European countries outside the UK and the rest of the world. Within Europe or elsewhere in the European Union there may be no transmission charges.

Billing and Payment: All charges quoted are exclusive of VAT. Commodity rates are considered monthly.

Software over the telephone

MicroLink is selling you a series of software programs which you'll be able to download directly from our system. The range will include games within educational and business programs, and will cover all the most popular areas of interest.

Talk to the world - by satellite

MicroLink is part of the international Telecom network. In the USA, Australia and a growing number of other countries there are many thousands of users, with electronic mailboxes and the power they can control them just as easily as you do ours in Britain - the only difference is that the messages travel much faster (up to 96,000 miles/hour) around the world or nation.

What you need to access MicroLink

You need four things though in order to use MicroLink: a computer, a line for any type of access (either full duplex or even an electronic telephone provided it has communications facilities), a modem (it can be a simple PicoFax type using 1200/75 baud) or a more sophisticated one operating at 3000/2400 or 12000/1200 baud, and appropriate software to run the system.

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C. Please enclose the completed authority

I/We agree to pay option which is held with **British Publications** or government establishment and Public Limited Companies, you will be given an authorisation form for completion which will require an official seal/initials to accept my/our banking authority.

hosting these events.

On the ADOBECC locations and the BBC are used to detect the densities of versions 2 and 3.

Maybe I should buy an old BBC to check that the future programs that I write are compatible.

Stephen Williamson

Good reading

CET has congratulated you on a first rate magazine from Alan's Amiga Apartments and especially after I recently had *Amiga Report* in print on the Amiga a slightly less

I agree with Steven Hunt's

suggestion that you should include some relatively dense and complex graphic routines for the more experienced Amiga programmers to get to grips with.

I would be very grateful if you could help me with the following:

Could you tell me if there is a local distributor for the ROMS, which is a disassembled listing of all the ROM and chipsets that each machine contains and how it works in practice. The Complete Amiga ROM Disassembly by Matthew House is the best I know.

Could you also tell me if there is a book which has an introduction to the world of the Amiga's "special" memory

because our "regular" Amiga doesn't have it.

I have sent Alan Keene a series of questions/hints to get the information about the Amiga's memory locations and the WSPC location.

Please you can answer my questions as I would like to make full use of the Amiga's memory capabilities which many other owners do not.

Alan Goldsmith, Carlton.

• There is no book that gives a complete ROM disassembly for the 600XL, but let us recommend a few very good books for your purposes:

Firstly The Technical Reference House (UK) provides a full listing of the OS on the 400/600 machines which gives you a very good

idea of how everything works on the XL too plus you get the Operating System Users Guide as a freebie book to the machine code programmer.

The Amiga Basic Source Book (Computer Books) gives a disassembly and explanation route of the ROM basic cartridge which has a few bytes in the same on the XL.

DOS 12.0 is covered in two books: Basic Amiga DOS (Datavideo) which covers the 400 (200/300) and the 600/600, (300), which provides a full listing of CPU SYS (the displacement arguments).

As a good complement to the above books, there is a

FINAL WORD ON THOSE OS BUGS

HAVING bought an 800XL for Christmas 1984 I am now on my third one. The first lasted up while I was at progress and was replaced.

The second had the same fault and we found that we replaced only two weeks apart the same.

My question is this: Does anyone else have an 800XL which uses the 600XL and 800XL comparators are being replaced with faulty ones and given a simple read. That is:

PRINT PAGE 0400340

If the result is still bad then the alternative Read 600XL if you get 800XL you have the option of using C Pads which is all right.

This answer was explained to my reader, but it appears that most people give the 600XL and 800XL a wider shareware all have detected bugs.

According to the letter writer, Alan no longer uses the Amiga C Pads which left and say it is his experience because of a production one.

If this is the case, and Alan are definitely insisting faulty machines needs action in necessary to remedy this situation otherwise Alan will not help.

Don't get me wrong - I am

enthusiastic about Alan having had the power supply 400 computer 600 computer and now an 800XL, without the usual fears of getting it looking up repeatedly.

In the Amiga Letter to correct the earlier Amiga note both writers, the same:

Any any other 800XL users shout the faulty - B J Gosselink, Germany

• • •

CET has approached you on your suggestion for the Amiga user to tell us what they thought and what you thought.

The main reason for this letter is hopefully to help you reader. I Williams writing in the October issue:

I bought my Amiga 400 early in 1983 and found that the screen monitor and the keyboard supplied only touched the surface of the displayline of the machine.

I found I was getting Amiga, See C. Williams, which were all interconnected in a hybrid manner.

When writing a program, including anything across the keyboard would occasionally hang causing it necessary to switch off and wait an agonisingly long time until it was working again.

A phone call to the Amiga

Helpdesk gave me the solution. Apparently both the trackball and an RGB connector had the outer buffer pins up and caused the Amiga to lock up repeatedly.

The solution is to pull both and then give the L127 command. I never have the need of bypass or adding me more than two lines at a time and then giving the L127 command.

As is time-consuming but I don't get feedback any other - B J Gosselink, Germany

• • •

1200XL unaligned 800XL which brought over a package short time prior June issue of CET. I had not been getting very far with understanding my machine but I am now an old-timer of your Amiga and Graphics sections which have taught me quite a lot.

I would like to know if you can help me with a problem that I have with my 800XL.

When I type in programs it sometimes stops working. I have pressed the cursor and the only way I can regain control is to use the Reset button.

This is fine most of the time, but sometimes this will clear all of the programs that I have

typed in and I have to start all over again.

Will you please tell me if this is normal or if there is something wrong with my machine - P. Turner, Tiverton.

• Let's clear up this problem of bugs in the OS and Bios chips and for all.

Like all microchips there are minor bugs in Amiga's machine. You may be thankful that they are not so serious as say some of the early Beagle or Aztec machines but they are nonetheless real there.

Don't go running back to the shop and ask for a new machine because the bugs can easily be worked around.

The bug most frequently concerns the EXPAND and CG-MTRAC memory action bugs!

On the old 400/600 Bios cartridge (Rev A) one of the routines to move memory word by word (MOVW) had a bug which meant that the machine would crash and lock up whenever it was asked to move a multiple of 256 bytes.

This may rarely happen of course, but it made much sense for a lot of testing especially involving deleting lots of files.

There is no cure for it

hardware was produced by Computer Books called *Mapping the Atari*.

It covers sections within the OS Board, Z8000 and all of the other useful bytes for programs beyond I/O and screen.

Make sure you get the newest edition if you have an 800XL, as it also covers memory on the A6, A8, and A10 computers and 6502-2-8.

One other book that would go well is *The Pe-Age Manual* which is a slightly less technical guide to the workings of the machine and its OS.

This is not a substitute for the Technical Reference Notes, but is much more helpful to the less advanced machine code programmer.

except to make sure you ZA/WI your programs regularly.

You'll know if it happens though because the keyboard will accept nothing you type unless pressing Return will only let you enter one character at a time or it will lock up again.

When Rev B Atari was meant for the XLs or the fact -2 types would you believe - was corrected.

Unfortunately some bright spark at Atari decided that he wanted to do the same to the older regime EXPAND boards were perfectly OS as it would leave the same sort of mess happen when you add them on to 10, so some people get strange when entering programs.

This problem with EXPAND can also cause failure during the OS boot command giving you an error #8 where there should not be one.

Rev A boards have two other faults which are quite odd results in doing INPUT/OUTPUT variable LOCATE and GETKEY successfully get their data read up under very rare circumstances and the ROM command is a bit quirky.

Now I guess all these other problems of course justifies the need for other rather major one.

As the system could sometimes work out the last few

Common variables

CAN you tell me please where is a list in which one byte's program can read and can another byte's referencing the variables and then values set up in the first program?

I appreciate that the case would be that *QBasic* would then written a program that stores variables in zero.

Creating a while loop also and then reading it then the second program would expect it would be zero and the same programming would be tedious and defeat the object which is to reference programs and 6502-2-8. It

Manageable size.

DO THE ADDRESS OF /MAP programs, is there any way of representing the maximum line number, 8000, that can be used as the range of lines?

As far as I am aware to have a range starting at over 10000 and less than the whole program - A.G. Bartram, Berwickshire.

There is no easy way to use common variables with MacBasic, but have added calling up a file which contains your main program. In 1.0, MacBasic plus then containing just a line number to define anything that remains of the old program?

By using RETURN key mode you could then get the new program to FILE correctly

when you had MACBASIC in. You may find that this is a more satisfactory way of setting up a variable line address.

The other question has no easy answer. I'm afraid, You'll just have to live up with hoping that each command 8000 after your LIST command

Strip Poker on disc

DO YOU need the media or Strip Poker in your computer discase cabinet but although it was a good review your editor Pat Classen hasn't done much about the disk

bytes of memory before the display appears, as Alan thought. Ah! Let's add a little extra to it to force to tell the program that it can't use the last 16 bytes of memory.

Good idea but we did it by adding 16 to the 16 and 16 program counter so that it would register as being out of memory 16 bytes too early.

This effect is cumulative which means that every time you ZA/WI a program 16 address bytes are added to it.

On a 164, much as this quickly runs up as 64 of course you think. Ah - so let's just LIST the program and remove all uses of 16 to clear up the bytes.

It means the EXPAND routine is used to the fullest, of course, to add them and you can well guess the results. The only thing to do is ZA/WI it first then LIST it.

If ENTER creates the menus, raised the scroll bar and so on and by adding a few bytes to some of the lines such as a ROM or read then LIST it.

Many other bugs have been pronounced but I can guess that you will work - the most likely probably being to move garbage over the keyboard.

All of these bugs have been sorted in Rev C which is in the

32 machines and also available via cartridge for older computers.

The 105 is not without its problems too. That old 4000000 GB could run out every so often during clean or colour I/O.

It would come back about 30 seconds later but would have spent a program by then.

This was circumvented by a routine independently left in the machine code which allowed for older programs to keep going during a long power cut.

Also the cassette routines didn't clear their buffers correctly so OS/AVI could sometimes leave garbage at the start of the cassette causing it not to load back again.

The last for this one is simple. If you have a 400 or 800 always type LPW/RET before trying to ZA/WI a program. Ignore the 132 error.

This will ensure that the buffer is cleared before you start.

A number of other things could cause minor problems but only at a machine code level so I won't cover them here.

On the XLs the OS was revised to clear these problems and to be as large bug free. However the bugs are still.

There exists in many 8000,

and 800XL machines, a timing problem with the 32000 chip. It normally works fine but after a certain amount of time and particular brand of RAM lost all track of time and wouldn't communicate with the other chips in the machine.

The cure for this is a replacement 32000 chip but only one or Atmel supplied version or you'll run into further problems.

You can find out if you have this fault (broken) in the main pack test by running the following program:

```
10 REM TEST FOR FAULT IN MAIN PACK
20 PRINT "MAIN"
30 GOTO 10
```

Let's see. Until something overnight until it fails possibly with a yellow screen and garbles on the screen. One of the reasons you have the Heats chip and you should take care not to damage it.

Once the main pack fails you will lose this program to white nothing.

Perhaps this will clear up just what the bugs are and why they occur. As I have said though they are generally minor and can usually be avoided by the common practice of making regular back-ups of programs.

Angela Wiley

Answers

Making you one step up from the rest of us, I'd better prove that a couple of things.

For one thing, it really improves BASIC, not BASIC as the others.

I don't trouble reading a lot of literature and in press DIPSONY has had to pay me £1000 to get rid of them and finish off the other entries.

A huge little judge panel, having trouble with the most local game - Mark Gately, Newark, Nottinghamshire.

■ I think that it is probably the best quantitative person in the UK. To achieve this score we had the greatest number for MS-DOS.

The disc version is basically the same as the Floppy disk release (MS-DOS) and it requires 386.

As I didn't add anything apart from some protection routines to the disc, you must have BASIC readout to play the game - that is, don't load down DIPSONY on an ALICE.

As I did a lot of searching for the discwise version, and tested all the versions under BASIC (the operating system and BASIC) you there have a MS-DOS machine to run it.

In fact I only had about 80 bytes to spare under there so it's a tight squeeze.

The cassette also requires BASIC, but if you accidentally do press the OPTION key and MS-DOS is the new resident code loader routine, it needs to just have a MS-DOS in regular BASIC, etc!

With you on the leading trail, now I'll move the computer along to a well-known one, and then you'll hold the OPTION key down.

But only had the cassette to go by and so couldn't know the changes for sure.

André Wilkes

Disc doublers

AM I about to buy a dual drive for my 600XL?

For a number of reasons you have been advertising a disc doubler which is designed to halve your costs.

I am not certain about buying one as according to my research, duplicating a disc in the

ATARI USER Mailbag

We welcome letters from readers - about your experiences using the Atari games, about tips you would like to pass on to other users - and indeed what you would like to see in future issues.

The address to write to is:
Managing Editor
Atari User
Europe House
54 Chester Road
Hitchin SG5 1AE

very disadvantageous to the drive and damage the disc.

They say that the older paper which discs are often printed on is such a way that turning it back-to-front will tend to reduce the magnetic particles from the surface of the disc? - Richard J. Harries, Barnsley.

■ Q: Can I divide an otherwise clear doubleside tape into two or three sections?

One manufacturer obviously doesn't like them and has probably had to respond to several access stories.

Resisted against this is the fact that many people use them without problems.

The Atari User editorial team contains programmes of both persuasions so you'll have to make up your own mind.

User groups

A NEW user group has just been formed in Bexleyheath, Kent, meeting bi-monthly.

If anyone is interested then please telephone Colin on 0208/678 6867 - Paul Taylor

* * *

AM I about to buy a dual drive for my 600XL? As my area is a computer centre with others in writing up a Friday and Saturday Afternoon Group - Brian Quashni, 13 Bridge Walk, Tunbridge Wells, Kent, TQ1 2EE.

* * *

FROM THE output, do you have double and tripe in the Caret? If so, can you give me information regarding a duplexer for my

adhesive tabs and interesting amount could be printed, and anything more complex could be linked into your margin or a good word processor. Super cool perhaps.

Auto-boot tapes

COULD you please tell me if there is any way of turning an ordinary BASIC program into a boot tape, and could you explain fully how it works?

I would like to know what I'm doing rather than just trying it in a library - J. Hallinan, Ashton, Vale.

■ The easiest way to produce auto-boot tapes is to save the programme using RAM. C. You can then load and run the program with the single RUN C.

We hope to publish other ways of producing auto-boot tapes and discs in a future issue. Watched to see who first gets it right.

Expanding the 600 XL

AM I expand the memory of my 600XL discwise, with modules of 800KB or 128KB that are on offer in your magazine?

After doing my research to day you'll have been specially made for expanded systems - just need to plug it in and start again? - M.L. Leggett, Birmingham.

■ With the present high cost of memory modules you'd better off starting again with either a longer 600XL, if you can find one, or a 130XL.

Piracy pointers

/ READ with interest your report on John Joseph's attempt to stop sending his magazine to Computer User (part of the same group) and I have my observations to make.

I bought Computer User earlier this month (600XL here) and its modemisation system and had them install it.

It turns out that the colours

an Atari User Group please contact me at the address below.

You may ask What a computer designer got to do with that? Well I thought of backtracking to something that all you Atari enthusiasts and those who like the Commodore range - Raymond Price, Mandeville House, 9 Leeds Street, Croydon, CR0 2PR.

Newspaper accounts

I HAVE an 800XL, also about 110000 and won't even fit fitting a palmer.

I am a newspaper and I was wondering if there is a program for the 600XL that will work with my newspaper accounts.

There are over 200 accounts and the program must be able to access each one, change the amounts over time and then read the changed amounts at a later date.

It should also be able to calculate bills based on the previous - Bill Threlfall, Plymouth.

■ You should use an accounts package but this makes rather like over-hill in these cases.

Have you thought about putting the information into a database which has a built-in calculation feature such as Quattro Pro? -

It's worth thinking about and may end up saving you a lot of time and trouble in the long run.

Simple bills of same

In some important graphics programs did not work any more and Computer Support offered no adequate advice except if it cost out the extra money!

If you are worried about such things then I do believe being satisfied they would make the change for £25, bringing the total package to £750.

It's really important that hardware is inexpensive enough otherwise, I don't think they ought to manage.

Programs are a massive phenomenon. If programs change, hardware changes, which speeds up the market.

Computer Computer Support should get their name in order and change price list to reflect existing programs and hardware! — **Geoffrey Winkler, Oxford.**

Looking for a printer

RECENTLY the Amstrad world seems to have been moving very fast and I was wondering if you could answer the following questions:

Are Oceanic releases from the Street Ward, Cheltenham Super Four and Cheltenham still on the Amstrad 4032, series?

I found that Imperial were to present some of their papers to the Amstrad users group at the time?

Do you know if any of the other printers released by Oceanic houses are planned for release for Amstrad?

Having read through the news from the Amstrad 4032 Series I was looking for a book which would only give info about what the Amstrad advanced features you would like explain them clearly.

Four Amstrad Computer listed good but £17.50 is a lot of money to spend if it only tells me what I already know.

Can you advise me on what to consider and possibly recommend another book? — **Chris Haworth, Preston.**

• The answer to your first two questions is — possible but unlikely in the near future. The best way to find out is to contact the companies con-

cerned.

Melbourne House Among Graphic Systems Limited Development Telephone Manchester and many others are all planning releases on the Amstrad.

"Your Amstrad Computer" is a very good book and covers as much ground as is conceivable using just machine code.

It is a little expensive but we think it is worth every penny. Ask any Amstrad user about "The Amstrad Bible" and you'll see what we mean.

New releases

IS AMSTRAD anything in fact a printer for my 4032? and I can't seem to get 8E2322 or a Centronics parallel interface.

This is because I need your advice as to an incompatible but reliable one.

I phoned various Amstrad outlets and found the range to be between 200£ and 300, a price that suits my pocket!

A couple of Amstrad printers cost less but I only sample, but I was told by one outlet that they would cost £100 or more in government 1000. — **Mike Charlton, Halesowen.**

• The best answer is to look through the ads in the magazine. Any machine sold by a reputable supplier will have a 12 month guarantee and often they can always go direct to the manufacturer if the retailer can't help you.

However most printers being sold these will work trouble-free for over three.

If you intend buying one I think in particular interface that but why and let us know.

Reluctant camels

I HAVE a 4032 and a VHS Data Recorder with which I record local news of the "Reluctant Camels".

It is a machine code program so you have to get the computer to read the code itself when it is switched on, but after about 30 seconds it goes into the next run. It will not load this either although

you can hear your voice onto the tape and if you play the tape back you hear the data.

Obviously do you know why the recorder has a stereo head and the tape is recorded on one channel? Difficult one — **Phil Crowley.**

• This problem is almost certainly with the recorder. Try taking it into a local shop and see if they let you try it and withdraw the guarantee that works. Or take your part number back for repair.

Otherwise send it back to the place you got it from, asking for a new one. The stereo system is to allow the user much to be used for a soundcheck while taping.

BBS on test

DO YOU consider any information to be lost in a new BBS under test in Wattonham 0503 274388. Since 22.00 to 07.00 daily. Setup Mike Davis spent 200 free Amstrad Special issues on his hobby — **H. J. Davis, Northampton.**

Video connection

COULD you tell me how to transfer pictures produced by a 4032 to a video tape? — **David Chapman, London SE16.**

• The 4032 cannot attach directly to a VCR as it has no video output and instead at the back — **Marked question.**

This 8 pin DIN can be connected to the video in socket on the VHS recorder and the plug need switch changed from Tivion to Amstrad or vice-versa. Camera.

This will give a far better result than simply plugging the TV lead into the serial socket on the video. Either use a standard monitor cable, or even up a lead as follows.



Location 54017

I OWN a 4032. Bought when my last supplier left the BBC website.

I thought I'd better have a look at where I bought it from, something from the family planning office!

My supplier had a BBC test disc book of discs for the computer with a telephone book, but there's another story.

My supplier is that the BBC broadcast discs that normally accompany location 54017 cassette in TELF 871 P/BK 240277 I got 282 and since about the 1980 120 in the shop. Can you identify the supplier? — **A. M. Sherry, North Wales.**

• Location 54017 on the BBC website shows that normally accompany location 54017 cassette in TELF 871 P/BK 240277 I got 282 and since about the 1980 120 in the shop. Can you identify the supplier? — **A. M. Sherry, North Wales.**

Another supplier

Fun and Games

WILL you tell me how to transfer pictures produced by a 4032 to a video tape? — **David Chapman, London SE16.**

We were quite happy until we saw some of the amazing video recorded going colour and black-and-white models that end up like normal ones.

The person in the video got a colour model and the person in a second place received a good model.

For some unknown reason when we had the BBC website the sites were 10.00 for which we received a small amount of commented home 20.

Please can you tell me the things that you have found — **Stephen Parry and Dennis Mayfield, Macclesfield, Cheshire.**

Looking at socket on back of 4032.



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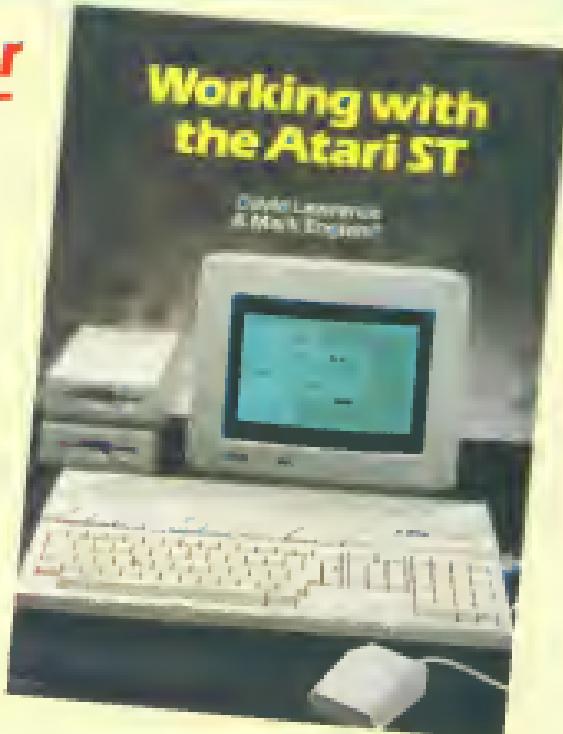


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